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THE
ZOOLOGICAL RECORD

VOLUME THE FIFTY-EIGHTH

BEING

RECORDS OF ZOOLOGICAL LITERATURE

RELATING CHIEFLY TO THE YEAR

1921

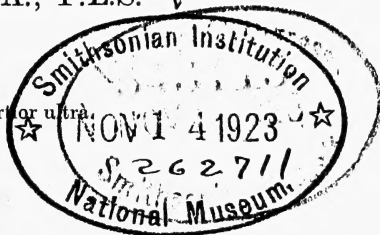
COMPILED FOR THE ZOOLOGICAL SOCIETY OF LONDON WITH ASSISTANCE FROM SOME
REGIONAL BUREAUS OF THE INTERNATIONAL CATALOGUE, BY

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Papers and Memoirs intended for this work should be addressed to "THE EDITOR of the Zoological Record, Zoological Society, Regent's Park, London, N.W. 8." It is earnestly requested that in the case of separately-printed copies of papers so forwarded, the *original pagination* may be indicated.

PREFACE.

THE Annual Volumes of the Zoological Record from XLIII (1906) to LI (1914) inclusive were produced in association with the International Catalogue of Scientific Literature and were identical except in title page with the (N.) Zoology volumes of the Catalogue, 6th to 14th annual issues inclusive. Since then the volumes have been issued on the sole responsibility, financial and editorial, of the Zoological Society, although a gradually decreasing assistance has been given in the shape of card slips compiled by some of the Regional Bureaus of the Catalogue organisation.

The increasing cost of producing the Record has thrown a burden on the finances of the Zoological Society which has seriously interfered with sides of its scientific work more closely related to the study and care of living animals. Last year, the Society explained the position in circulars addressed to the leading institutions in the world interested in zoological science, and announced that it would be unable to continue the publication of the Record unless it was assured that a sufficient number of copies would be subscribed for. The response, unfortunately, was insufficient, and the net loss to the Society on the production and publication of the present volume, so far as can be ascertained, will exceed £1,100. The Council have agreed to assume this responsibility for the present volume, and, in the hope that some means will be found by other institutions interested in the Record, to come to its support, have sanctioned the compilation of the material for the Record dealing with the literature of 1922, but now give formal notice that they will not undertake the publication of that volume or of subsequent issues of the Record unless they receive substantial aid from other institutions. Such aid should be in the form of annual donations to the Zoological Society of London and may be made contingent on the Society receiving, in all, sufficient support to enable it to publish the Record. The Zoological Society is prepared to regard an annual loss of £500 or even £600 as a contribution it may reasonably make to the Record in the general interest of Zoological Science and hopes, therefore, that other institutions will amongst them be able to contribute an equal amount in addition to subscribing for copies. Otherwise, the Zoological Record must cease.

A few minor changes have been introduced in the present issue:—

- (1) Two sections, Arthropoda (General) and Vertebrata (General), have been abolished and such papers as are of a general nature transferred to Comprehensive Zoology or that section to which they appear to be most suitable.
- (2) The subject numbers have been omitted as of little practical use.
- (3) The numbering of the titles under authors has been placed at the commencement of each entry.
- (4) The pagination of each paper is indicated by "pp." instead of brackets.
- (5) The abbreviations of the titles of the journals usually quoted have been rearranged in strict alphabetical order with the place of publication following the title.
- (6) The tables of contents of the subject index have been curtailed in order to reduce the expense of printing.

On the completion of the fifty-seventh volume, DR. SHARP, who had been the responsible editor of the Record for over thirty years, resigned, and his place was taken by MR. W. L. SCLATER. A few months later DR. SHARP died and the Zoological Record Committee and the Council of the Zoological Society desire to put on record their appreciation of the great services rendered to the Record by the late Editor. A short notice of DR. SHARP and a portrait will be found following this.

P. CHALMERS MITCHELL, *Secretary.*

Zoological Society, London.



Yours very truly
D. Sharp.

DR. DAVID SHARP, F.R.S.

It would not be fitting that a new volume of the Zoological Record should appear without some notice of the death of the late editor, DR. SHARP, which occurred on 27th August, 1922, at his home at Brockenhurst in the New Forest. His connection with the Record commenced in 1885, when he undertook the preparation of the section on Insecta, and in 1891 he became the responsible editor of the entire work. On the completion of the fifty-seventh volume dealing with the literature for 1920 he resigned the editorship which he had held for thirty years. Such, however, was his enthusiasm for the work that he offered to continue to be responsible for the Insecta, and we believe that he was working on the preparation of the matter for the present volume during the last few days of his life, though he did not live to complete his task.

DR. SHARP was born on 15th October, 1840, at Towcester in Northamptonshire and it was after the removal of his father to London that he came under the influence of Herbert Spencer who was for some time an inmate of his father's house, and there can be no doubt that the keen and logical quality of DR. SHARP's mind was largely due to his early association with that eminent philosopher who gave him much encouragement and assistance in his early studies of Natural History.

Destined by his father for a commercial career, DR. SHARP, not finding it congenial, decided to enter the profession of medicine, and after studying in London and Edinburgh he graduated in 1866 with the degrees of M.B. and C.M. He gave up medical practice in 1884 and was then able to devote his whole time to Entomology. In 1890 he accepted an invitation to undertake the charge of the insect collections of the University Museum of Zoology at Cambridge; he retained this post until 1909 when, having built himself a house at Brockenhurst overlooking one of the most beautiful parts of the New Forest, he retired thither for the remainder of his days.

Most of DR. SHARP's multitudinous writings are systematic works on the Coleoptera to which he devoted the greater part of his life, but more, perhaps, than any other of his contemporaries he had a wonderfully

wide general knowledge of the other orders of insects and of his more general writings the best known are undoubtedly the two volumes on insects in the "Cambridge Natural History" published in 1895 and 1899 which have become standard works and classics.

But perhaps his greatest service to Zoology was his work for the Zoological Record with which he was connected for over forty-five years as Recorder of Insecta and General Editor. He greatly improved the arrangement and the facilities for reference and continued to carry on the work through the period during which the Record and the International Catalogue of Scientific Literature were being carried on as a joint undertaking.

W. L. S.

EXPLANATORY.

This Volume is printed in the Divisions enumerated on p. viii.

The pagination of each Division is separate, and is given at the left-hand top corner of the pages. The number and name of the Division is given as a heading on each page. The date 1921 corresponding to the bulk of the literature indexed is given at the top of each page.

In the Subject Index of each Division authors are quoted by name only. The full references will be found in the Title Section of the Division.

The Literature indexed is mainly that of 1921 but includes entries for earlier years that have been received too late for inclusion in previous volumes.

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I. COMPREHENSIVE ZOOLOGY

BY

W. L. SCLATER.

This section includes works that deal with more than one branch of Zoology, or that are of general interest to Zoologists. It is, therefore, not complete in itself as regards any one subject included in it. The special records complete each subject. A few memoirs included in the special records are repeated in this division.

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- 1a.—Aichel, O. Zur Diskussion über das Problem der Entstehung der Zahnform. Anat. Anz. 52 1919 pp. 81-90 145-152 193-206 207-213 241-260 417-439.
- 2.—Alexander, W. B. History of Zoology in Western Australia, Part III, 1829-1840. J. R. Soc. W. Australia Perth 3 1918 (37-69).
- 3.—Allen, E. J. Heredity in plants, animals and man. Ann. Rep. Trans. Plymouth Inst. 16 1921 pp. 83-110 1 pl. 11 text-figs.
- 4.—Anders, H. E. Die entwicklungs-mechanische Bedeutung der Doppelbildungen nebst Untersuchungen über Einfluss des Zentralnervensystems auf die quergestreifte Muskulatur des Embryo. Arch. EntwMech. Leipzig 47 1921 pp. 452-497.
- 5.—Anderson, R. J. Some notes on animal intelligence, cerebration, and reflexes. IXe Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 237-243.
- 6.—Annandale, N. The African element in the Freshwater Fauna of British India. IXe Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 579-589.
- 7.—Annandale, N. The aquatic fauna of Seistan. A summary. Rec. Indian Mus. 18 1921 pp. 235-253.
- 8.—Bateson, W. Problems of genetics. pp. x + 258 pls. and text-figs. New Haven Conn. (Yale Univ. Press) 1916 8vo.
- 9.—Beauchamp, P. de et Lami, R. La bionomie intercotidale de l'île de Brehat. Bull. sci. France Belgique Paris 55 1921 pp. 184-238 4 pls.
- 10.—Bellissima, G. B. Flora e Fauna Latina nelle monete Consolari: Contributo allo studio della storia naturale presso i Romani con 56 figure. Parte Prima Introduzione e Flora. Atti acc. fisiocratici Siena ser. 8 11 1920 pp. 319-332. Parte Secundi Fauna T.c. pp. 333-347.
- 11.—Berenberg-Gossler, H. von. Das Problem des Todes. Anat. Anz. Jena 52 1919 pp. 97-115.
- 12.—Berry, E. W. Paleontology: Its Contributions to Knowledge. Scientia Bologna 29 1921 pp. 263-274.
- 13.—Bodina, J. H. Some factors influencing the catalase content of organisms. J. Exper. Zool. Philadelphia 34 1921 pp. 143-148 3 figs.
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- 15.—Boswell, P. G. H. Sedimentation, environment and evolution in past ages. Proc. Trans. Liverpool Biol. Soc. 35 1921 pp. 5-28 3 figs.
- 16.—Bottazzi, F. and Rignano, E. Le finalisme de la vie. Scientia Bologna 29 1921 pp. 23-40.
- 17.—Brailsford-Robertson, T. La base chimique de la croissance et de la longévité. Scientia Bologna 29 1921 pp. 193-206.
- 18.—Brumfiel, D. M. The animal ecology of Johnson County [Iowa]. Bull. Univ. Iowa 8 No. 1 1918 pp. 1-37 23 pls. and maps.
- 19.—Burge, W. E. and E. L. An explanation for the variations in the intensity of oxidation in the life-cycle [*Leptinotarsa decemlineata*]. J. Exp. Zool. 32 1921 pp. 203-206 1 fig.
- 20.—Busch, W. Ueber das Plankton der Kieler Förde im Jahre 1912-13. Wiss. Meeresuntersuch. Kiel 18 abt. Kiel. 1920 pp. 26-142 30 text-figs.

- 21.—**Cantacuzène, J.** Sur quelques réactions d'immunité chez les invertébrés. *Rev. gén. sci.* Paris **31** 1920 pp. 353-356.
- 22.—**Carey, E. J.** Studies in the dynamics of histogenesis. IV. Tension of differential growth as a stimulus to myogenesis in the limb. V. Compression between the accelerated growth centers of the segmental skeleton as a stimulus to joint formation. VI. Resistances to skeletal growth as stimuli to chondrogenesis and osteogenesis. *Amer. J. Anat.* **29** 1921 pp. 93-115 9 figs.
- Carleton, H. M.** *vide* Champy.
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- 26.—**Champy, C.** Notes de biologie cytologique. Quelques résultats de la méthode de culture des tissus. VI. Le testicule. *Arch. Zool. Exp.* Paris **60** 1920 (461-500) figs. 1-48.
- 27.—**Champy, C.** and **Carleton, H. M.** Observations on the shape of the nucleus and its determination. *Quart. J. Micros. Sci.* London **65** 1921 pp. 591-610 2 pls. 11 text-figs.
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- 31.—**Clark, F. W.** and **Wheeler, W. C.** The Inorganic Constituents of Marine Invertebrates. *Prof. Papers U.S. Geol. Surv.* Washington **102** 1917 pp. 1-56.
- 32.—**Clarke, J. M.** Organic dependence and disease: their origin and significance. *New York State Mus. Bull.* Albany Nos. 221 222 1921 (1-113).
- 33.—**Cockerell, T. D. A.** Zoölogy. A Textbook for Colleges and Universities. pp. i-xii + 1-558 figs. 1-211 *New York (World Book Coy.)* 1920.
- 34.—**Cole, A. E.** Oxygen supply of certain animals living in water containing no dissolved oxygen. *J. Exp. Zool.* Philadelphia **33** 1921 pp. 293-320 2 figs.
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- 37.—**Cunningham, J. T.** Hormones and Heredity. A discussion of the evolution of adaptations and the evolution of species. pp. xx + 246 3 pls. London (Constable) 1921 8vo.
- 38.—**Czekanowski, J.** Les lois de Mendel et Galton et les coefficients de l'hérédité de Pearson. *Rev. gén. sci.* Paris **32** 1921 pp. 671-675.
- 39.—**Davenport, C. B.** Heredity of twin births. *Proc. Soc. Exp. Biol. Med.* New York **17** 1920 pp. 75-77.
- 40.—**Davies, A. M.** An Introduction to Palaeontology. pp. i-xi + 1-414 frontispiece and figs. 1-100. London (Murby) 1920 8vo.
- 41.—**Demoll, R.** Die Vererbbarkeit somatischer Erwerbungen. *Arch. EntwMech.* Leipzig **47** 1921 pp. 443-451 2 pls. 1 text-fig.
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- Dobkiewicz, L.** *vide* Romeis.
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- 46.—Dubois, R. Mechanism intime de la production de la lumière chez les organismes vivants. IXe Congr. inter. Zool. Monaco (publ. Rennes) 1914 pp. 151–160.
- 47.—Dubreuil, G. et Favre, M. Cellules plasmatiques, plasmazellen à granulations spécifiques, cellules à corps de Russell (cytologie et formes évolutives). Arch. Anat. microsc. Paris 17 1921 pp. 302–360 13 plates.
- 48.—Duprenoy, J. La signification des cellules migratrices. Rev. gén. sci. Paris 31 1920 pp. 727–732 6 figs.
- 49.—Ekman, S. Allgemeine Bemerkungen über die Tiefenfauna der Binnenseen. Intern. Rev. Hydrobiol. Leipzig 8 1917 pp. 113–124.
- 50.—Ekman, S. Studien über die marinen Relikte der nord-europäischen Binnengewässer. Intern. Rev. Hydrobiol. 8 1918 pp. 321–337 2 maps; pp. 477–528 19 text-figs; pp. 545–589.
- 51.—Erhard, H. Der Tiefzug, mit einen Ausblick auf die Entwicklung des menschlichen Flugwesens. IXe Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 174–207 20 text-figs.
- 52.—Erik, J. The glacial theory in the light of biological investigation. Ann. Mus. Hungar. Budapest 18 1921 (89–110) 7 figs.
- Favre, M. *vide* Dubreuil.
- 53.—Fawsitt, C. E. The uniformities of Nature. J. Proc. R. Soc. N.S. Wales Sydney 54 1920 pp. 1–24.
- 54.—Fejérváry, G. J. de. Note sur l'emploi de quelques termes biologiques. Ann. Mus. Hungar. Budapest 18 1921 pp. 181–185
- 55.—Fessler, F. Zur Entwicklungsmechanik des Auges. Arch. EntwMech. Leipzig 46 1920 pp. 169–201 2 plates 1 text-fig.
- 56.—Field, H. H. [editor]. Bibliographia Zoologica 30 1921 pp. 1–480 [titles to 1920 Genl. pt. and Syst. pt. Protozoa to Diptera].
- 57.—Fischel, A. Über normale und abnorme Entwicklung des Auges. I. Über Art und Ort der ersten Augenanlage sowie über die formale und causale Genese der Cyklopie. II. Zur Entwicklungsmechanik der Linse. Arch. EntwMech. Leipzig 49 1921 pp. 383–462 3 plates 42 text-figs.
- 58.—Fischer, P. J. Eine Pliocän-fauna von Seran (Molukken). Centralbl. Min. Stuttgart 1921 pp. 242–251 278–286.
- 59.—Fossa-Mancini, E. Catalogo dei fossili dell' Appennino centrale conservati nel museo di geologia dell' università di Pisa. Parte I. Palaeontogr. Italica Pisa 24 1918 pp. 129–145 1 pl.
- 60.—Francé, R. H. Der Parasitismus als schöpferisches Prinzip. Centralbl. Bakt. Jena Abt. 2 50 1920 pp. 54–64 6 text-figs.
- 61.—Fraser, C. McL. Association, commensalism and parasitism among marine animals in the Strait of Georgia. Canadian Field-Nat. 35 1921 pp. 48–50.
- 62.—Frech, F. Geologie Kleinasien im Bereiche der Bagdadbahn. Ergebnisse eigener Reisen und paläontologische Untersuchungen. Zs. D. Geol. Ges. Berlin A 68 1916 pp. 1–325 24 plates 4 text-figs.
- 63.—Frederikse, A. M. Der Zusammenhang zwischen Mitochondrien und Bindegewebsfibrillen. Anat. Anz. Jena 50 1917 pp. 393–399 figs. 1–3.
- 64.—Fritzsche, C. H. Neue Kreidefaunen aus Süd-amerika (Vorläufige Mitteilung). Centralbl. Min. Stuttgart 1921 pp. 272–277.
- 65.—Fruhstorfer, H. Tessiner Wanderbilder: III. Der Monte Salvatore (Mit orthopterologischen, malacologischen und herpetologischen Mitteilungen). Arch. Natg. Berlin Abt. A 86 (9) 1921 pp. 104–113.
- 66.—Galant, S. Reflex und Instinkt bei Tieren. I. Reflexe bei unverletzten und geköpften Tieren. Biol. Centralbl. Leipzig 41 1921 pp. 193–210.
- 67.—Gatenby, J. B. The Identification of Intracellular Structures. J. R. Micr. Soc. 1919 pp. 93–118 figs. 1–14.
- Gatenby, J. B. *vide* Ludford.
- 68.—Gates, R. R. The genetics of sex. Nature London 107 1921 pp. 571–572.

- 69.—Gellhorn, E. Beiträge zur vergleichenden Physiologie der Spermatozoen. I. Mitteilung. Arch. ges. Physiol. Berlin 185 1920 pp. 262–280.
- 70.—Germain, L. Origine de la fauna fluviatile de l'Est Africain. IXe. Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 559–571 3 pls.
- 71.—Glaser, O. Fertilization and egg-secretions. Biol. Bull. Wood's Hole Mass. 41 1921 pp. 63–72.
- 72.—Godlewski, E. Le problème du rapport entre le plasma et le noyau au cours du développement embryonnaire. Rev. gén. sci. Paris 32 1921 pp. 676–681.
- 73.—Goldschmidt, R. Die quantitativen Grundlagen von Vererbung und Artbildung. Berlin (Springer) 1920.
- 74.—Goldschmidt, R. Ein Beitrag zur Analyse der Doppelmissbildungen. Arch. EntwMech. Leipzig 47 1921 pp. 654–667 12 figs.
- 75.—Goldsmith, M. Les réactions phototropiques de quelques animaux marins. C. R. Acad. Sci. Paris 173 1921 pp. 1026–1030.
- 76.—Gray, J. The mechanism of ciliary movement. Proc. Cambridge Phil. Soc. 20 1921 pp. 352–359 2 figs.
- 77.—Guyénot, E. A quel moment a lieu la réduction chromatique? C. R. Soc. Phys. Nat. Genève 38 1921 pp. 53–55.
- 78.—Guyénot, E. Lamarckisme ou Mutationisme. Rev. gen. sci. Paris 32 1921 pp. 598–606.
- 79.—Guyer, M. F. & Smith, E. A. Studies on Cytolysis. III. Transmission of induced eye-defects. J. Exp. Zool. Philadelphia 31 1920 pp. 171–223 7 text-figs. & 4 plates.
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- 81.—Haeckel, E. Fünfzig Jahre Stammesgeschichte. Historisch-kritische Studien über die Resultate der Phylogenie. Jenaische Zs. Natw. 54 1916 pp. 133–202.
- 82.—Haecker, V. Über weitere Zusammenhänge auf dem Gebiete der Mendelforschung. Arch. ges. Physiol. Berlin 181 1920 pp. 149–168.
- 83.—Haempel, O. Zur Kenntniss einiger Alpengseen mit besonderer Berücksichtigung ihrer biologischen und Fischerei Verhältnisse. Intern. Rev. Hydrobiol. Leipzig 8 1918 pp. 227–306 2 pls. 4 text-figs.
- 84.—Hagedoorn, A. L. and A. C. The relative value of the processes causing evolution. pp. 1–294 20 text-figs. The Hague (Nijhoff) 1921 8vo.
- 85.—Häggqvist, G. Über die Entwicklung und die Verbindungen des Sarkolemmis. Anat. Anz. Jena 53 1920 (81–100) figs. 1–7.
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- 90.—Harvey, E. N. The nature of animal light. [Monographs on Experimental Biology.] Philadelphia and London (J. B. Lippincott Company) 1920 pp. i–x + 1–182 figs. 1–35.
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- 93.—Hawkins, H. L. Invertebrate Palaeontology. An introduction of the study of fossils. pp. i–xix + 1–226 pls. i–xvi. London (Methuen) 1920 8vo.

94.—Heidenhain, M. Über die teilungsfähigen Drüseneinheiten oder Adenomeren, sowie über die Grundbegriffe der morphologischen Systemlehre. Zugleich Betrag V zur synthetischen Morphologie. Arch. Entw.-Mech. Leipzig 49 1921 pp. 1-178 82 figs.

95.—Heilbrunn, L. V. Protoplasmic viscosity changes during mitosis. [*Cumingia*.] J. Exp. Zool. Philadelphia 34 1921 pp. 417-447 1 chart.

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96.—Hennig, E. Die Fauna der deutsch-ostafrikanischen Urgon-fazies. Zs. D. Geol. Ges. Berlin A 68 1916 pp. 441-476 3 plates 1 text-fig.

97.—Herlant, M. Le cycle de la vie cellulaire chez l'oeuf activé. Arch. Biol. Liège Paris 30 1920 pp. 517-600 18 tables 14 diagrams.

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99.—Hertwig, G. Das Sexualitätsproblem. Biol. Centralbl. Leipzig 41 1921 pp. 49-87.

100.—Hertwig, P. Haploide und diploide Parthenogenese. Biol. Centralbl. Leipzig 40 1920 pp. 145-174.

101.—Hess, C. V. Beiträge zur Kenntnis des Lichtsinnes bei Wirbellosen. Arch. ges. Physiol. Berlin 183 1920 pp. 146-167 8 figs.

102.—Hesse, R. Das Herzgewicht der Wirbeltiere. Zool. Jahrb. Jena Abt. f. allg. Zool. 38 1921 pp. 243-364.

103.—Hilzheimer, M. Aphoristische Gedanken über einen Zusammenhang zwischen Erdgeschichte, Biologie, Menschengeschichte und Kulturgeschichte. Zs. Morph. Stuttgart 21 1920 pp. 185-208.

104.—Högbom, A. G. Über die arktischen Elemente in der aralokas-pischen Fauna, ein tiergeographisches Problem. Bull. Geol. Inst. Upsala 14 1917 pp. 241-260 1 plate 2 text-figs.

105.—Holtedahl, O. Notes on the Ordovician fossils from Bear Island collected during the Swedish expedi-

tions of 1898 and 1899. Norsk. Geol. Tidsskr. Christiania 5 1918 pp. 79-94 3 plates 3 text-figs.

106.—Holtedahl, O. On the Palaeozoic series of Bear Island, especially on the Heclahook system. Norsk. Geol. Tidsskr. Christiania 5 1919 pp. 121-148 4 plates 6 text-figs.

106a.—Huber, A. Die wärmeliebender Tierwelt der weiter Umgebung Basels. Arch. Natg. Berlin Abt. A 82 7 1918 pp. 1-120.

107.—Izuka, A. and Matsuura, K. Catalogue of the Zoological specimens exhibited in the Natural History Department, Tokyo Imperial Museum. pp. 1-192 2 col. pls. Tokyo (Imp. Mus.) 1920 8vo.

108.—Jacobshagen, E. Die Homologie der Wirbeltierkiemen. Jenaische Zs. Natw. 57 1920 pp. 87-142 2 pls.

109.—Jaekel, O. Palaeontologische Berichte. Über palaeontologische Abbildungen. Palaeont. Zs. Berlin 2 1915-18 pp. 225-8.

110.—Jaekel, O. Palaeontologische Berichte. Über Skelettbildungen. Palaeont. Zs. Berlin 2 1915-18 pp. 228-232 1 fig.

111.—Jaekel, O. Paläontologische Berichte: Die Stellung der Paläontologie zu einigen Problemen der Biologie und Phylogenie. 1. Die Zeitdauer der organischen Entwicklung. 2. Schädelprobleme. 3. Gehirn und Sinnesorgane silurischer Fische. Palaeont. Zs. Berlin 3 1921 pp. 213-239 11 figs.

112.—Jaworski, E. Die marine Trias in Sudamerika. Centralbl. Min. Stuttgart 1920 pp. 381-383.

113.—Joest, E. Zur Frage der biologischen Einteilung der Missbildungen. Arch. path. anat. Berlin 234 1921 501-9.

114.—Jökl, A. Zur Entwicklungsgeschichte des Wirbeltierauges. Anat. Anz. Jena 51 1918 pp. 208-239 16 text-figs.

Kammerer, P. *vide* Steinach.

115.—Katzu, D. und Révész, G. Experimentelle Studien zur vergleichenden Psychologie. Zs. angew. Psychol. Leipzig 18 1921 pp. 307-320.

- 116.—**Kingsbury, B. F.** The extent of the floor-plate of His and its significance. *J. Comp. Neur. Philadelphia* 32 1920 pp. 113–135 11 figs.
- 117.—**Kohn, A.** Der Bauplan der Keimdrüsen. *Arch. EntwMech. Leipzig* 47 1920 pp. 95–118 1 pl. 7 text-figs.
- 118.—**Kolmer, W.** Über einige durch Ramon y Cajal's Uran-Silbermethode darstellbare Strukturen und deren Bedeutung. *Anat. Anz. Jena* 48 1916 pp. 506–519 figs. 1–18 pp. 529–540 figs. 19–20.
- 119.—**Kolmer, W.** Ueber eine eigenartige Beziehung von Wanderzellen zu den Chorioidealplexus des Gehirns der Wirbeltiere. *Anat. Anz. Jena* 54 1921 pp. 15–19 3 text-figs.
- 120.—**Kraatz, W. C.** A preliminary general survey of the macrofauna of Minor Lake, on the Ohio State University Campus. *Ohio J. Sci. Columbus* 21 1921 pp. 137–182 1 pl.
- 121.—**Krausse, A.** Das principium causalitatis und die moderne Naturwissenschaft. *Arch. Natg. Berlin Abt. A* 81 2 1915 pp. 103–119.
- 122.—**Kříženecký, J.** Einige Bemerkungen zu Begriff und Definition des Hermaphroditismus. *Anat. Anz. Jena* 50 1917 pp. 16–30.
- 123.—**Lameere, A.** L'Évolution des premiers organismes. *Ann. Soc. Zool. Malac. Bruxelles* 51 1920 (11–46).
- Lami, R.** *vide* Beauchamps.
- 124.—**Landacre, F. L.** The origin of cerebral ganglia. *Ohio J. Sci. Columbus* 20 1920 (299–310).
- 125.—**Lavoisier, A.-L.** Mémoires sur la respiration et la transpiration des animaux. [Les maitres de la pensée scientifique: Collection de Mémoires publiés par les soins de M. Solovine.] pp. i–viii + 1–67 Paris 1920.
- 126.—**Leder, H.** Einige Beobachtungen über das Winterplankton im Triester Gulf (1914). *Intern. Rev. Hydrobiol. Leipzig* 8 1917 pp. 1–21.
- 127.—**Leidhold, C.** Devon-Fossilien von der bithynischen Halbinsel (Kleinasien). *Zs. D. Geol. Ges. Berlin A* 69 1917 pp. 308–347 3 plates.
(N–17041 g) q
- 128.—**Leuthardt, F.** Die Fossilien der Humphriesi-Schichten aus den Hauenstein-Basisternal. *Eclogae Geol. Helvet. Lausanne* 16 1920 pp. 130–132.
- 129.—**Levi, G.** La vie des éléments isolés de l'organisme. *Scientia Bologna* 25 1919 pp. 21–32.
- 130.—**Loeb, L.** Transplantation and individuality. *Biol. Bull. Wood's Hole Mass.* 40 1921 pp. 143–180.
- 131.—**Lohmann, H.** Die Bevölkerung des Ozeans mit Plankton nach der Ergebnissen der Zentrifugenfänge während der Ausreise der „Deutschland“ 1911 zugleich ein Beitrag zur Biologie des Atlantisches Ozeans. *Arch. Biontol.* 4 pt. 3 1920 pp. 1–617 16 pls. 113 text-figs.
- 132.—**Loomis, F. B.** Origin of South American Faunas. *Bull. geol. soc. Amer. New York* 32 1921 pp. 187–196.
- 133.—**Ludford, R. F. and Gatenby, J. B.** Dictyokinesis in germ cells, or the distribution of the Golgi apparatus during cell-division. *Proc. Roy. Soc. London B* 92 1921 pp. 235–244 2 pls.
- 134.—**Lutz, F. E.** Geographic average, a suggested method for the study of distribution. *Amer. Mus. Novit. New York No. 5* 1921 pp. 1–7.
- 135.—**MacBride, E. W.** The method of evolution. *Scientia Bologna* 28 1920 pp. 23–33.
- 136.—**Massart, J.** Les quatre étapes de le conjugaison sexuelle. *Bull. Acad. R. Belg. Bruxelles (5)* 7 1921 pp. 38–53.
- Matsuura, K.** *vide* Izuka.
- 137.—**Maurer, F.** Die morphologische Beurteilung der Epithelkörperchen und anderer Drüsen mit innerer Sekretion. *Jenaische Zs. Naturw.* 55 1917 pp. 175–202.
- 138.—**Maurer, F.** Ernst Haeckel. *Jenaische Zs. Natw.* 56 1920 pp. 225–252 portr.
- 139.—**Meves, F.** Eine neue Stütze für die Plastosomentheorie der Vererbung. Vorläufige Mitteilung. *Anat. Anz. Jena* 50 1918 pp. 551–557 figs. 1–2.
a 1—3

140.—Moberg, E. G. Horizontal distribution of the Zooplankton in Devils Lake, North Dakota. Intern. Rev. Hydrobiol. 9 1920 pp. 153-159 289-304 2 maps.

141.—Monard, A. La faune profonde du Lac de Neuchâtel. Bull. Soc. Neuchâtel. 44 1920 (65-236).

142.—Morgan, C. L. Instinctive disposition. Scientia Bologna 28 1920 pp. 269-277.

143.—Nachtsheim, H. Sind haploide Organismen (Metazoen) lebensfähig? Biol. Centralbl. Leipzig 41 1921 pp. 459-479 1 fig.

144.—Newman, H. H. Readings in evolution, genetics and eugenics. pp. xviii + 523. 101 illustr. Chicago (Univ. Chicago) 1921 8vo.

145.—Nowikoff, M. Ueber die Architektur des knorpels von Wirbellosen. IXe Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 396-400 6 figs.

146.—Nutting, C. C. Barbados-Antigua expedition. Narration and preliminary report of a zoological expedition. Bull. Univ. Iowa (Univ. Iowa Stud.) 8 1919 pp. 1-274 50 pls.

147.—Nutting, C. C. The relation of mendelism and the mutation theory to natural selection. Science New York 53 1921 pp. 129-131.

148.—Ogawa, C. Contributions to the histology of the respiratory spaces of the vertebrate lungs. Amer. J. Anat. Philadelphia 27 1920 pp. 333-393 38 figs.

149.—Orton, J. H. Is bisexuality in animals a function of motion. Nature London 108 1921 pp. 145-146.

150.—Oudemans, A. C. Das Dollosche Gesetz der Irreversibilität. Arch. Natg. Berlin Abt. A 86 (9) 1921 pp. 1-10.

151.—Oye, P. van. Ueber das Plankton des Tjiliwoeng-Flusses bei Batavia (Niederl. Ost indien). Intern. Rev. Hydrobiol. Leipzig 9 1920 pp. 160-165 2 text-figs.

152.—Palmgren, A. Embryological and morphological studies on the mid-

brain and cerebellum of vertebrates. Acta Zool. Stockholm 2 1921 1-94 119 text-figs.

153.—Petronievics, B. Lois de l'Évolution des espèces, des rameaux phylétiques et des groupes. Rev. gén. sci. Paris 32 1921 pp. 140-143.

154.—Pictet, A. Recherches démontrant la non-hérédité des caractères acquis. C. R. Soc. Phys. Hist. Nat. Genève 37 1920 pp. 24-28.

155.—Plate, L. Fauna ceylanica. Untersuchungen zur Fauna Ceylons nach den Sammlungen von L. Plate ii Uebersicht über biologische Studien auf Ceylon. Jenaische Zs. Naturw. 54 1916 pp. 1-42 9 pls. 4 text-figs.

156.—Plough, H. H. Further studies on the effect of temperature in crossing over. J. Exp. Zool. Philadelphia 32 1921 pp. 187-202 3 figs.

157.—Poche, F. Über die Unzulässigkeit des Vorgehens des Herrn Stiles bei der Einführung von Art. 30 (g) der Regeln und die daraus resultierende Ungültigkeit dieser Bestimmung. Arch. Natg. Berlin Abt. A 80 5 1914 pp. 40-47.

157a.—Poche, F. Zur Begründung dreier Aufträge zwecks Einschränkung der Zahl der Namensänderungen und Abschaffung des liberum veto in der Internationalen Nomenklaturkommission. Arch. Natg. Berlin Abt. A 83 6 1919 pp. 75-155.

158.—Poche, F. Die Erscheinungszeit von Heft XII des Jahrganges 1834 der "Isis." Arch. Natg. Berlin Abt. A 85 (5) 1920 pp. 68 & 69.

159.—Prell, H. Anisogamete, Heterogamete und Äthogamete als biologische Wege zur Förderung der Amphimixis. Arch. EntwMech. Leipzig 49 1921 pp. 463-490 1 fig.

160.—Prenant, M. Sur l'apparition de l'hémoglobine dans les hématies des Vertébrés. C. R. Soc. biol Paris 85 pt. 2 1921 pp. 912-914.

161.—Prenant, A. Les appareils ciliés et leurs dérivés. Ch. VII. Appareils ciliés dérivés-dérivés directs. J. anat. physiol. Paris 1914-1919 (publ. 1919) pp. 424-528 37 figs.

- 162.—Primrose, W. B. The evolution of the vertebrate endoskeleton. An essay on the significance and meaning of segmentation in coelomate animals. *J. Anat. London* 55 1921 pp. 119-137 13 text-figs.
- 163.—Przibram, H. Entwicklungs-geschichte und Spezialisierung im Tierreiche. *Acta Zool. Stockholm* 2 1921 pp. 405-414.
- 164.—Przibram, H. unter Mitwirkung von Jan Dembowski und Leonore Brecher. Einwirkung der Tyrosinase auf "Dopa" (zugleich Ursachen tierischer Farbleidung IV). *Arch. Entw.-Mech. Leipzig* 48 1921 pp. 140-165.
- 165.—Przibram, H. Die Bruch-Dreifachbildung im Tierreiche. *Arch. Entw.-Mech. Leipzig* 48 1921 pp. 205-444 19 plates.
- 166.—Pütter, A. Studien über physiologische Ähnlichkeit VI. Wachstumsähnlichkeiten. *Arch. ges. Physiol. Berlin* 180 1920 pp. 298-340 2 figs.
- 167.—Rabaud, E. Recherches sur l'hérédité et la variation. Étude expérimentale et théorie physiologique. *Bull. biol. France Belgique Paris Supplement* 1 1919 (1-313) figs. 1-18.
- 168.—Rabaud, E. Évolution et sexualité. *Scientia Bologna* 25 1919 pp. 275-287.
- 169.—Rabaud, E. Prescience et causes actuelles dans l'instinct. *Scientia Bologna* 27 1920 pp. 442-452.
- 170.—Range, P. Die Geologie der Isthmuswüsten. *Zs. D. geol. Ges. Berlin B* 72 1920 (1921) pp. 233-242 1 pl. 1 text-fig.
- Reed, H. S. *vide Harris*.
- 171.—Reid, C. A. Heredity and acquired characters. *Nature London* 106 1921 pp. 596-598 726-7 107 p. 265-267 425-426 680-682 103 pp. 176-178 etc., also MacBride, E. W. and Cunningham, J. T. p. 630, Donkin, H. B. p. 758-759, Cunningham J. T. p. 828-829, Bather 107 p. 489-490
- 172.—Renaud, M. Fixation et conservation des pièces anatomiques avec leurs couleurs par une procédé simple et peu coûteux. *Bul. mém. soc. anat. Paris 6 série* 17 1920 p. 401.
- 173.—Renner, O. Mendel'sche Spaltung und chemisches Gleichgewicht. *Biol. Centralbl. Leipzig* 40 1920 pp. 268-277; also Lehmann, E. pp. 277-288.
- Revesz, G. *vide Katzu*.
- Rignano, E. *vide Bottazzi*.
- Roberts, E. *vide Detlefsen*.
- 174.—Rodighiero, A. Il sistema cretaceo del Veneto occidentale compreso fra l'Adege e il Piave, con speciale riguardo al Neocomiano dei Sette Comuni. *Palaeontogr. Italica Pisa* 25 1919 pp. 39-125 6 pls.
- 175.—Romeis, B. and Dobkiewicz, L. von. Experimentelle Untersuchungen über die Wirkung von Wirbeltierhormonen auf Wirbellose. I Der Einfluss von Schilddrüsenfütterung auf Entwicklung und Wachstum der Schmeissfliege (*Calliphora vomitoria*). *Arch. Entw.-Mech. Leipzig* 47 1920 pp. 118-130 5 text-figs.
- 176.—Rosenkrantz, A. Calcaire à Crania du port sud de Copenhague. *Com. Paleont. Mus. Mineral. Geol. Univ. Copenhague* 16 1920 pp. 1-68 (French résumé pp. 69-79) 2 plates 10 text-figs.
- 177.—Rosenstadt, B. Zellstudien. I. Bau der Epidermiszelle. Vorläufige Mitteilung. *Anat. Anz. Jena* 50 1917 (171-177).
- 178.—Salensky, W. Sur la valeur phylogénique du mésoblaste et du caelom. IXe Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 357-368.
- 179.—Sand, K. Experiments on the internal secretion of the sexual glands, especially in experimental hermaphroditism. *J. Physiol. Cambridge* 53 1919 pp. 257-263.
- 180.—Scala, A. C. Rol de los nucleolos en la division celular cariocinética. *Prim. Réun. Nac. soc. Arg. cienc. Nat. Buenos Aires* 1919 pp. 456-462 1 pl.
- 181.—Schreiner, K. E. Über Kern- und Plasmaveränderungen in Fettzellen während des Fettansatzes. Ein Beitrag zur Frage nach der Natur der sogen. Chromidien und Plastosomen. *Anat. Anz. Jena* 48 1915 (145-171) 24 figs.

182.—Schultze, W. Versuche über den Einfluss endokriner Drüsensubstanzen auf die Morphogenie. Kaulquaffenfütterungsversuche mit Epithelkörpern. *Arch. EntwMech.* Leipzig 48 1921 pp. 489–504 3 figs.

183.—Schultze, W. Bermerkung zur Arbeit von Knud Sand über experimentellen Hermaphroditismus. *Arch. Ges. Physiol.* Berlin 179 1920 pp. 217–18.

184.—Seiler, J. Neue Ergebnisse der Chromosomenforschung. *Verh. Schweiz. Nat. Ges.* Aarau 102 1921 pp. 84–94 2 figs.

185.—Sergi, G. Come la paleontologia rivela l'origine e l'evoluzione animale et vegetale. *Scientia Bologna* 29 1921 pp. 261–370.

186.—Singer, O. Studies in the history and method of science. Vol. ii xxii + 559 55 pls. many text-figs. Oxford (Clarendon) 1921 1. 8vo.

Smith, E. A. *vide* Guyer.

187.—Spitzer, A. Über die Ursache und den Mechanismus der Zweiteilung des Wirbeltierherzens. II. Teil. Die doppelte Septierung des arteriellen Herzschenkels und deren sekundäre Vereinfachung. *Arch. EntwMech.* Leipzig 47 1921 pp. 511–570 1 plate 6 text-figs.

188.—Steinach, E. Künstliche und natürliche Zwitterdrüsen und ihre analogen Wirkungen. Drei Mitteilungen. *Arch. EntwMech.* Leipzig 46 1920 pp. 12–28 1 plate.

189.—Steinach, E. Verjüngung durch experimentelle Neubelebung der alternierenden Pubertätsdrüse. *Arch. EntwMech.* Leipzig 46 1920 pp. 557–618 2 plates 7 text-figs.

190.—Steinach, E. und Kammerer, P. Klima und Mannbarkeit. *Arch. EntwMech.* Leipzig 46 1920 pp. 391–458 1 plate 2 text-figs.

191.—Stieglitz, E. J. Histochemical studies on the mechanism of renal secretion. *Amer. J. Anat.* 29 1921 pp. 33–91 6 text-figs 1 plate.

192.—Stockard, C. R. Developmental rate and structural expression; an experimental study of twins, "double monsters" and single deformities, and the interaction among

embryonic organs during their origin and development. *Amer. J. Anat.* Philadelphia 28 1921 pp. 115–277 32 text-figs 6 plates.

192a.—Strand, E. Der norwegische Naturforscher Hans Ström (1726–1797) und seine zoologischen Schriften. Ein Blatt aus der Geschichte der norwegischen Zoologie. *Arch. Naturg.* Berlin Abt. A 83 6 1919 pp. 27–46.

192b.—Strand, E. Meine zoologischen (exclus. entomologischen) Publikationen 1897–1918. *Arch. Natg.* Berlin Abt. A 83 7 1919 pp. 24–36.

192c.—Strand, E. Die zoolog. Werke von Pontoppidan (1753) Leem (1767) und Wilse (1779, 1790–1792). Aus der Geschichte der norwegischen Zoologie. *Arch. Natg.* Berlin Abt. A 83 7 1919 pp. 150–156.

192d.—Strand, E. Johannes Gistel und sein zoologischen Schriften. Ein Blatt aus der Geschichte der Zoologie. *Arch. Natg.* Berlin Abt. A 83 11 1919 pp. 124–119.

193.—Strohl, J. Les sécrétions internes du point de vue de la biologie générale. *Rev. gén. sci.* Paris 32 1921 pp. 262–273.

194.—Stromer, E. Die Entdeckung und die Bedeutung der Land und Süßwasser bewohnenden Wirbeltiere im Tertiär und in der Kreide Ägyptens. *Zs. D. Geol. Ges.* Berlin A 68 1916 pp. 397–425.

195.—Stromer, E. Über paläozoologische Sammlungen. *Zs. D. Geol. Ges.* Berlin A 71 1919 pp. 47–62.

196.—Studer, Th. Die Fauna der Schieferkohlen von Gondiswil-Zell. *Eclogae Geol. Helvet.* Lausanne 16 1920 pp. 128–130.

197.—Studnička, F. K. Ein weiterer Beitrag zur Kenntnis der Zellverbindungen (Cytodesmen) und der netzartigen (gerüstartigen) Grundsubstanzen. *Anat. Anz.* Jena 48 1915 (396–413) figs. 1–8 (417–427).

198.—Studnička, F. K. Das Schema der Wirbeltieraugen. *Zool. Jahrb.* Jena Abt. Anat. Ontog. 40 1917 pp. 1–48 12 text-figs.

- 199.—Suñer, A. P. La constitution de l'individualité, Ière Partie: L'individualité physiologique. *Scientia Bologna* 29 1921 pp. 443-452. IIème Partie. L'individualité psychique 30 1921 pp. 13-24.
- 200.—Swinnerton, H. H. The use of graphs in Palaeontology. *Geol. Mag. London* 58 1921 pp. 357-364 397-408 10 figs.
- 201.—Szymanski, J. S. Motorische und sensorielle Tiertypen. *Biol. Centralbl. Leipzig* 40 1920 pp. 558-562.
- 202.—Taschenberg, O. Bibliotheca Zoologica II Verzeichnis der Schrifter über Zoologie welche in der periodischen Werken enthalten und vom Jahre 1861-1880 selbst erschienen sind. Lief 21-23 1921 pp. 6073-6312.
- 203.—Terroine, É. F. Contribution a la connaissance de la physiologie des substances grasses et lipidiques. *Ann. Sci. Nat. (Zool.) Paris ser. 10 vol. 4* 1920 Nos. 1-6 (1-397).
- 204.—Teudt, H. Erwiderung auf Heller's Artikel „Über die Geruchstheorie von Teudt.“ *Biol. Centralbl. Leipzig* 40 1920 pp. 259-267; also Heller *op cit.* 41 1921 pp. 138-142.
- 205.—Thomson, J. A. The new Biology. First Part. The Web of Life, Animal Behaviour, Experimental Study of Development. *Scientia Bologna* 26 1919 pp. 113-125. Part II: Bio-chemistry and Bio-physics, Livingness, Evolution. *T.c.* pp. 208-219.
- 206.—Thórólfsson, S. Framthró-unarkenningar [Evolution]. *Andvari Reykjavik* 1919 pp. 86-118.
- 207.—Troxell, E. L. The Nature of a Species in Paleontology, and a new kind of Type Specimen. *Journ. Geol. Chicago Ill.* 29 1921 pp. 475-479.
- 208.—Tschermak, A. Über die Erhaltung der Arten. *Biol. Centralbl. Leipzig* 41 1921 pp. 304-329 10 figs.
- 209.—Veit, O. Zur Theorie des Wirbeltierkopfes. *Anat. Anz. Jena* 49 1916 pp. 368-376.
- 210.—Waldeyer-Hartz. Karl v. Bardeleben. *Anat. Anz. Jena* 51 1919 pp. vii-xii portr.
- 211.—Waldeyer - Hartz, Gustaf Retzius. *Anat. Anz. Jena* 52 1919 pp. 261-268 portr.
- 212.—Weil, A. Die Körpermasse der Homosexuellen als Ausdrucksform ihrer spezifischen Konstitution. *Arch. EntwMech. Leipzig* 49 1921 pp. 538-544.
- Wheeler, W. C. *vide Clark.*
- 213.—Wilhelmi, H. Experimentelle Untersuchungen über situs inversus viscerum. *Arch. EntwMech. Leipzig* 48 1921 pp. 517-532 9 figs.
- 214.—Wilson, E. B. The cell in development and inheritance. 2nd ed. pp. xxii + 483 194 text-figs. New York (Macmillan Co.) 1919 8vo.
- 215.—Wiman, C. Über das Kreidegebiet bei Båstad. *Bull. Geol. Soc. Upsala* 15 1916 pp. 77-90 3 text-figs.
- 216.—Wollaston, A. F. R. Life of Alfred Newton. pp. xvi + 332 5 portr. London (Murray) 1921 8vo.
- 217.—Wundsch, H. H. Beiträge zur Frage nach dem Einfluss von Temperatur und Ernährung auf die quantitative Entwicklung von Süßwasserorganismen. (Wissenschaftliche Resultate aus der Teichdüngungsversuchsstation Sachsenhausen.) *Zool. Jahrb. Jena Abt. f. allg. Zool.* 38 1921 pp. 1-48 5 plates 3 text-figs.
- 218.—Yokoyama, M. A fossiliferous Bed of the Coastal Region of Northern Hitachi. *J. Geol. soc. Tokyo* 28 1921 p. 283.
- 219.—Yung, E. Le Station de Zoologie lacustre de l'Université de Genève et les variations quantitatives du plankton dans le Leman. IXe Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 98-112 6 text-figs.
- 220.—Ziegler, H. E. Das Kopfproblem. *Anat. Anz. Jena* 48 1915 (449-465) figs. 1-7.
- 221.—Ziegler, H. E. Ueber die Prinzipien der Tierpsychologie. IXe Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 87-97 6 text-figs.
- 222.—Zieglwaller, F. Die tierischen Reservestoffe. IXe Congr. intern. Zool. Monaco (publ. Rennes) 1914 pp. 300-347.

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II. PROTOZOA

ARRANGED BY

H. M. WOODCOCK, D.Sc.

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I.—TITLES.

- 1.—Acton, H. W., Curjel, D. F. and Dewey, J. O. The diagnosis and treatment of benign tertian and malignant tertian fevers. Sections i-iii. Ind. J. Med. Res. Calcutta 8 1921 pp. 750-773 pls. xlii-xliv.
- 2.—Adie, H. Preliminary note on the development of the Leishman-Donovan parasite in spleen-juice and in the alimentary tract of *Cimex lectularius* (Lin.). Ind. J. Med. Res. Calcutta 9 1921 pp. 255-260 pls. xxii-xxv.
- 3.—Agulhon et Léobardy, J. de. Remarques sur l'emploi en hématologie des colorants complexes basés sur la méthode de Romanowsky. C. R. soc. biol. Paris 84 1921 pp. 120-122.
- 4.—Ammann, H. Zum Formenkreis von *Ceratium hirundinella* O.F.M. und *Anuraea cochlearis*. (Vorl. Mitth.). Arch. Hydrobiol. Stuttgart 13 1921 pp. 92-96.
- 5.—Andrews, E. A. American Folliculinas: taxonomic notes. Amer. Nat. Lancaster Pa. 55 1921 pp. 347-367.
- 6.—Arndt, A. Ueber Zentrosomen bei Amöben und verwandten Formen. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 p. 152.
- Arndt, A. vide Nöller, W.
- 7.—Barret, H. P. and Yarbrough, N. A method for the cultivation of *Balantidium coli*. Amer. Journ. Trop. Med. Baltimore 1 1921 pp. 161-164.
- 8.—Bass, C. C. An attempt to explain the greater pathogenicity of *Plasmodium falciparum* as compared with other species. Amer. Journ. Trop. Med. Baltimore 1 1921 pp. 29-33.
- 9.—Beckwith, T. D. and Reich, W. W. The variation in size of *Trypanosoma brucei* according to the host. Proc. Soc. Exp. Biol. Med. New York 18 1921 pp. 316-17.
- Béguet, M. vide Sergent, Ed.
- 10.—Bělár, K. Untersuchungen über Thecamöben der *Chlamydothryx*-Gruppe. Mit Benutzung des Nachlasses von Hermann Schüssler. Arch. Protistenkunde Jena 43 1921 pp. 287-354 pls. iii-x.
- 11.—Bělár, K. Untersuchungen über den Formwechsel von *Actinophrys sol*. (Vorläufige Mitteilung) Biol. Centralbl. Leipzig 41 1921 pp. 385-394.
- 12.—Belcour, C. Hémogrégarine parasite d'*Aspidophorus cataphractus* Schonevelde. C. R. soc. biol. Paris 85 1921 pp. 837 & 838.
- 13.—Belehradek, J. Sur le mouvement des Vorticelles. A propos de la critique de M. Fauré-Fremiet. C. R. soc. biol. Paris 84 1921 pp. 253 & 254.
- 14.—Bodine, J. H. Stock cultures of a Protozoon. Science New York N.S. 53 1921 pp. 92 & 93.
- 15.—Börner, L. Die Bodenfauna des St. Moritzer-Sees. Eine monographische Studie. Arch. Hydrobiol. Stuttgart 13 1921 pp. 1-91 209-281 pls. i & ii.
- 16.—Boëz, L. Schizogonie et lésions pulmonaires dans un cas de toxoplasmosse spontanée du chien. C. R. soc. biol. Paris 85 1921 pp. 479-482.
- Bohn, G. vide Drzewina, A.
- 17.—Brug, S. L. Die Iodzysten. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 47-58.
- 18.—Busch, W. Studien über Ciliaten des Nordatlantischen Ozeans und Schwarzen Meeres. Arch. Protistenkunde Jena 42 1921 pp. 364-379 pls. xvi & xvii.
- 19.—Busch, W. Beitrag zur Kenntniss der *Coccolithophoridae*. Arch. Naturgesch. Berlin 85 Abth. A. H. 8 1919 (1920) pp. 50-54.
- 20.—Buschkiel, M. *Caulleryella pipientis*, n. sp. Eine neue Schizogregarine aus den Larven der *Culex pipiens*. Zool. Jahrb. Jena Abth. Anat. 43 1921 pp. 97-148 pls. iv & v.

Caillon, L. *vide* Lebailly, C.

21.—Calkins, G. N. *Uroleptus mobilis* Engelm. IV. Effect of cutting during conjugation. J. Exp. Zool. Philadelphia 34 1921 pp. 449-470 10 figs.

22.—Calkins, G. N. Age of parents and vitality in *Uroleptus mobilis*. Proc. Soc. Exp. Biol. Med. New York 17 1920 pp. 72-74.

23.—Cash, J. and Wailes, G. H. The British fresh-water Rhizopoda and Heliozoa. Vol. V. Heliozoa, by G. H. Wailes. London (the Ray Society) 1921 8vo pp. x + 72 pls. lxiv-lxxiv.

24.—Cauchemez, L. Fréquence des Amibes iodophiles chez le porc, en France. Bull. soc. path. exot. Paris 14 1921 pp. 321-322.

25.—Cauchemez, L. Fréquence de la Coccidie du porc (*Eimeria brumpti*, n. sp.) en France. Bull. soc. path. exot. Paris 14 1921 pp. 645-648.

26.—Chapman, F. On Ostracoda, Foraminifera and some organisms related to *Calcisphaerae* from the Devonian of Germany. Journ. Roy. Microsc. Soc. London 1921 pp. 329-340 pl. viii.

27.—Chatton, E. Réversion de la scission chez les Ciliés. Réalisation d'individus distomes et polyénergides de *Glaucoma scintillans* se multipliant indéfiniment par scissiparité. C. R. Acad. Sci. Paris 173 1921 pp. 393-395.

28.—Chatton, E. Sur un mécanisme cinétique nouveau: la mitose syndinienne chez les Peridinien parasites plasmodiaux. C. R. Acad. sci. Paris 173 1921 pp. 859-862.

29.—Chatton, E. et Courrier, R. Sur un Trypanosome de la chauve-souris, *Vesperugo pipistrellus*, à formes crithidiennes intratissulaires et cystigènes. Hypothèse relative à l'étiologie du Goitre endémique. C. R. Acad. sci. Paris 172 1921 pp. 1254-1257.

30.—Chatton, E. et Courrier, R. Un *Schizotrypanum* chez les chauves-souris (*Vesperugo pipistrellus*) en Basse-Alsace. Schizotrypanose et goitre endémique. C. R. soc. biol. Paris 84 1921 pp. 943-946.

(N-17041 e)q

31.—Chatton, E. et Lwoff, A. Sur une famille nouvelle d'Acinétiens, les *Sphenophryidae*, adaptés aux branchies des mollusques acéphales. C. R. Acad. Sci. Paris 173 1921 pp. 1495-1497.

32.—Chatton, E. et Pérard, C. Les *Nicollellidae*, Infusoires intestinaux des gondis et des damans, et le cycle évolutif des Ciliés. Bull. biol. France Belg. Paris 55 1921 pp. 87-151 pls. i-iii.

33.—Clapier, P. Note sur un flagellé de la famille des *Tetramitidae*, parasite fréquent des plaies à caractère phagédénique. Bull. soc. path. exot. Paris 14 1921 pp. 208-211.

34.—Cognetti de Martiis, L. Nuovo contributo alla conoscenza delle Gregarine Monocistidee. Monit. zool. ital. Firenze 31 1920 (1921) pp. 149-155.

35.—Cognetti de Martiis, L. Gregarine monocistidee, parassite di *Oligocheti* della Nuova Guinea. Nova Guinea. Rés. Expéd. sci. néerl. 1912-1913 Leiden 13 Zool. iv 1921 pp. 501-584 pls. xii-xv.

36.—Conrad, W. Contributions à l'étude des Chrysomonadines. Bull. Acad. roy. Belg. Bruxelles 1920 pp. 167-189.

37.—Conrad, W. Sur un Flagellé nouveau à trichocystes, *Reckertia sagittifera* n. g., n. sp. Bull. Acad. roy. Belg. Bruxelles 1920 pp. 541-555.

38.—Cooke, C. W. and Cushman, J. A. Orbitoid Foraminifera of the genus *Orthophragmina* from Georgia and Florida. Prof. Paprs. U.S. Geol. Surv. Washington 108g 1917 pp. 109-124 pls. xl-xliv.

39.—Coppa, A. Contributo allo studio delle variazioni stagionali e mensili del *Ceratium hirundinella* O. F. Müller. Atti Soc. Ital. sci. nat. Milano 60 1921 pp. 35-48 pls. ii-iv.

Courrier, R. *vide* Chatton, E.

40.—Craig, C. F. The classification and differential diagnosis of the aestivo-autumnal malaria plasmodia. Amer. Journ. Trop. Med. Baltimore 1 1921 pp. 57-95 pls. i-iii.

41.—Craigie, J. The Ciliata. Trans. Proc. Perthshire Soc. nat. sci. Perth 7 1921 pp. 107-121.

42.—Crawley, H. Statistical observations on the Texas-fever parasite. Proc. Acad. Nat. Sci. Philadelphia 72 1920 (1921) pp. 331-336.

43.—Crump, L. M. Numbers of Protozoa in certain Rothamsted soils. J. Agric. Sci. Cambridge 10 1920 pp. 182-198 20 figs.

Curjel, D. F. *vide* Acton, H. W.

44.—Cushman, J. A. The Foraminifera of the Atlantic Ocean. Pt. 1. *Astrorhizidae*. Bull. U.S. Nat. Mus. Washington 104 1918 pp. 1-111 pls. i-xxxix.

45.—Cushman, J. A. Foraminifera of the Philippine and adjacent seas. Bull. U.S. Nat. Mus. Washington 100 vol. 4 1921 pp. 1-608 pls. i-c.

46.—Cushman, J. A. Foraminifera from the North Coast of Jamaica. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 47-82 pls. xi-xix.

47.—Cushman, J. A. Lower Miocene Foraminifera of Florida. Prof. Paprs. U.S. Geol. Surv. Washington 128 B 1920 pp. 67-74 pl. xi.

48.—Cushman, J. A. American species of *Operculina* and *Heterostegina* and their faunal relations. Prof. Paprs. U.S. Geol. Surv. Washington 128 E 1921 pp. 125-137 pls. xviii-xxi.

49.—Cushman, J. A. A new species of *Orthophragmina* from Louisiana. Prof. Paprs. U.S. Geol. Surv. Washington 128 E 1921 pp. 139-142 pl. xxii.

Cushman, J. A. *vide* Cooke, C. W.

50.—Cutler, D. W. Observations on the Protozoa parasitic in *Archotermopsis wroughtoni* Desn. Part III. *Pseudotrichonympha pristina*. Quart. Journ. Micr. Sci. London 65 1921 pp. 247-264 pl. x.

51.—Cutler, D. W. A method for estimating the number of active Protozoa in the soil. J. Agric. Sci. Cambridge 10 1920 pp. 135-143.

52.—Danisch, F. Über die Reizbiologie und Reizempfindlichkeit von *Vorticella nebulifera*. Zs. allg. Physiol. Jena 19 1921 pp. 133-190 1 curve-pl. 15 text-fig.

53.—Darling, S. T. The tertian characters of quotidian aestivo-autumnal fever. Amer. Journ. Trop. Med. Baltimore 1 1921 pp. 397-408.

54.—Delanoë, P. Au sujet d'*Haemogregarina brendae* Sambon et Seligmann. Bull. Soc. path. exot. Paris 14 1921 pp. 451-453.

55.—Delanoë, P. Au sujet de *Trypanosoma talpae* Nabarro. Bull. soc. path. exot. Paris 14 1921 pp. 453-455.

56.—Denne, M. T. A Gregarine parasite of the earthworm. Journ. Roy. Microsc. Soc. London 1921 pp. 251 & 252.

Dewey, J. O. *vide* Acton, H. W.

57.—Dobell, C. A report on the occurrence of intestinal Protozoa in the inhabitants of Britain, with special reference to *Entamoeba histolytica*. Med. Research Council Spec. Reps. No. 59 London 1921 pp. 1-71.

58.—Dobell, C. and O'Connor, F. W. The intestinal Protozoa of Man. London (Bale, Sons & Danielsson) 1921 8vo 211 pp. 8 pls.

59.—Doflein, F. Die Gattung *Chloramoeba* Bohlin und ihre Stellung im Reich der Organismen. Acta Zool. Stockholm 2 1921 pp. 431-443 2 pls. 1 text-fig.

Donatien, A. *vide* Sergent, Ed.

60.—Donizio, G. di. Su due Tripanosomi del bestiame nella Somalia italiana. Bull. soc. path. exot. Paris 14 1921 pp. 423-433.

61.—Doré, A. B. Notes on malarial infection in the imported skylark. New Zealand Journ. Sci. Wellington N.Z. 4 1921 pp. 126-129.

62.—Douvillé, H. Revision des Orbitoides. Ire Partie. Orbitoides crétaçés et genre *Omphalocyclus*. Bull. Soc. Géol. France Paris sér. 4 20 1921 pp. 209-232 pl. viii (Brief note in C. R. soc. géol. France 1920 pp. 166 & 167).

63.—Douvillé, H. Les Foraminifères de l'Éocène dans la région de Suez. Compte-Rendu soc. géol. France Paris 1920 pp. 106-7.

- 64.—Drzewina, A. et Bohn, G. Action nocive de l'eau sur des Stentors, en fonction de la masse du liquide. C. R. soc. biol. Paris **84** 1921 pp. 917-920.
- 65.—Drzewina, A. et Bohn, G. Sur des phénomènes d'auto-protection et d'auto-destruction chez des animaux aquatiques. C. R. Acad. sci. Paris **173** 1921 pp. 107-109.
- 66.—Duboscq, O. *Labyrinthomyxa sauvageai* n. g., n. sp., Protéomyxée parasite de *Laminaria lejolissii* Sauvageau. C. R. soc. biol. Paris **84** 1921 pp. 27-30.
- 67.—Duboscq, O. Les plasmodies de *Labyrinthomyxa sauvageai*. C. R. soc. biol. **84** 1921 pp. 30-32.
- 68.—Duke, H. L. On the zoological status of the polymorphic mammalian Trypanosomes of Africa and their relation to Man. Parasitol. Cambridge **13** 1921 pp. 352-397.
- 69.—Dunkerly, J. S. Nuclear division in the Dinoflagellate, *Oxyrrhis marina* Duj. Proc. Roy. physic. Soc. Edinburgh **20** pt. v 1921 pp. 217-220.
- 70.—Dunkerly, J. S. *Rhabdamoeba marina* gen. n. et spec. n. Proc. R. physic. Soc. Edinburgh **20** pt. v 1921 pp. 220 & 221.
- 71.—Dunkerly, J. S. Physiological reactions in the Protozoa. Nature London **107** 1921 p. 395.
- 72.—Erdmann, R. Endomixis and size-variations in Pure Bred Lines of *Paramoecium aurelia*. Arch. Entw. Mech. Leipzig **46** 1920 pp. 85-148 12 diag. 20 tables.
- 73.—Fantham, H. B. Some parasitic Protozoa found in S. Africa. (IV.) S. Afric. Journ. Sc. Johannesburg **18** 1921 pp. 164-170.
- 74.—Fischer, P. J. Eine Pliocän fauna von Seran (Molukken.) Centralbl. Min. Stuttgart **1921** pp. 242-251 278-286.
- 75.—Fischer, W. Einiges über Zysten von *Entamoeba coli*. Centralbl. Bakt. Jena Abth. 1 **86** Orig. 1921 pp. 491-494.
- 76.—Franchini, G. Trypanosome de la chauve-souris en Italie. Formes viscérales et stades de développement chez un Acarien Gamaside, le *Leio- gnathus laverani* n. sp. Bull. soc. path. exot. Paris **14** 1921 pp. 542-546.
- 77.—Franchini, G. Sur les flagellés intestinaux du type *Herpetomonas* du *Chamaeleon vulgaris* et leur culture, et sur les flagellés du type *Herpetomonas* de *Chalcides* (*Gongylus*) *ocellatus* et *Tarentola mauritanica*. Bull. soc. path. exot. Paris **14** 1921 pp. 641-645.
- Franchini, G. vide Laveran, A.
- 78.—Galiano, E. F. Sur les réactions chimiotactiques du flagellé *Chilomonas*. C. R. Acad. sci. Paris **172** 1921 pp. 776-779.
- 79.—Galiano, E. F. Contribucion al estudio de las reacciones quimotacticas del Flagelado *Chilomonas*. Bol. Soc. Espan. hist. nat. Madrid **20** 1920 pp. 282-301.
- 80.—Gauthier, M. Coccidies du chabot de rivière (*Cottus gobio* L.). C. R. Acad. sci. Paris **173** 1921 pp. 671-674.
- 81.—Ghosh, E. N. New hypotrichous Infusoria from Calcutta. Journ. Roy. Microsc. Soc. London **1921** pp. 248-250.
- 82.—Ghosh, E. N. Infusoria from the environment of Calcutta.—I. Bull. Carmichael Med. Coll. Calcutta **2** 1921 pp. 6-17 1 pl.
- 83.—Gignoux, M. Sur un organisme producteur de magnésie. Compte-Rendu soc. géol. France Paris **1918** pp. 42-3.
- 84.—Gignoux, M. et Moret, L. Le genre *Orbitopsella* Mun.-Chalm. et ses relations avec *Orbitolina*. Bull. Soc. Géol. France Paris Sér. 4 **20** 1920 (1921) pp. 129-140 pl. vi.
- 85.—Gillies, C. D. The Testaceous Rhizopoda of the Brisbane district. Queensland Nat. Brisbane **2** 1921 pp. 110-113 21 text-figs.
- 86.—Glaser, R. W. On the cytology and life-history of the Amoebae, with descriptions of two new species. J. Parasitol. Urbana **8** 1921 pp. 1-10 pls. i & ii.
- 87.—Greiner, J. Cytologische Untersuchung der Gametenbildung und Befruchtung von *Adelea ovata* (A. Schneider). Zool. Jahrb. Jena Abth. Anat. **42** 1921 pp. 327-362 pls. xvi & xvii.

88.—Harris, A. E. *Ceratium furca* and *Pedalion mirum*. Nature London 108 1921 pp. 42 & 340.

89.—Hartmann, M. Untersuchungen über die Morphologie und Physiologie des Formwechsels der Phyto-monadinen (Volvocales). III. Mitth.: Die dauernd agame Zucht von *Eudorina elegans*, experimentelle Beiträge zum Befruchtungs- und Todproblem. Arch. Protistenkunde Jena 43 1921 pp. 223–286 pls. i & ii.

90.—Hausman, L. A. Fresh water and marine Gymnostominan Infusoria. Trans. Amer. Microsc. Soc. Menasha Wis. 40 1921 pp. 118–143 pls. v–viii.

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91.—Hegner, R. W. Measurements of *Trypanosoma diemyleti* from different hosts and their relation to specific identification, heredity and environment. J. Parasitol. Urbana 7 1921 pp. 105–113.

92.—Hegner, R. W. *Cytamoeba bacterifera* in the red blood cells of the frog. J. Parasitol. Urbana 7 1921 pp. 157–161.

93.—Hegner, R. W. and Hsiang-Fong Wu. An analysis of the relation between growth and nuclear division in a parasitic Infusorian, *Opalina* sp. Amer. Nat. 55 1921 pp. 335–346.

94.—Herdman, E. C. Notes on Dinoflagellates and other organisms causing discolouration of the sand at Port Erin. Proc. Trans. Liverpool Biol. Soc. 35 1921 pp. 59–63.

95.—Heron-Allen, E. Phenomena of "intelligence" in the Protozoa. Nature London 107 1921 p. 456.

96.—Hertwig, R. Die Einkernigkeit bei den Acanthariën. Arch. mikr. Anat. Bonn 94 (Festschr. O. Hertwig) 1920 pp. 3–33 pls. i & ii.

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97.—Hoare, C. A. Some observations and experiments on Insect-Flagellates, with special reference to artificial infection of Vertebrates. Parasitol. Cambridge 13 1921 pp. 67–85.

98.—Hogue, Mary Jane. The cultivation of *Trichomonas hominis*. Amer. Journ. trop. Med. Baltimore 1 1921 pp. 211–214.

99.—Hollande, A. Ch. Culture pure mixte de levures et d'amibes cystigènes (*Vahlkampfia cruciata* n. sp.); obtention expérimentale d'amibes acystigènes. Arch. zool. exp. Paris 60 1921 Notes et Rev. pp. 33–42.

100.—Hollis, E. and Neaverson, E. Gault Foraminifera from Ford, Bucks. Naturalist London No. 774 1921 pp. 235–240.

101.—Hopkins, H. S. The conditions for conjugation in diverse races of *Paramecium*. J. Exp. Zool. Philadelphia 34 1921 pp. 339–384.

102.—Jackson, Leila. A protozoan parasite of the salivary gland of the dog. J. inf. diseases Chicago 29 1921 pp. 302–305.

Jimenez, J. vide Legroux, R.

103.—Jollos, V. Experimentelle Protistenstudien. I. Untersuchungen über Variabilität und Vererbung bei Infusorien. Arch. Protistenkunde Jena 43 1921 pp. 1–222.

104.—Kamm, M. W. Notes on Gregarines. J. Parasitol. Urbana 7 1921 pp. 175–178.

105.—Keilin, D. On the life-history of *Helicosporidium parasiticum* n. g., n. sp., a new type of Protist parasitic in the larva of *Dasyhelea obscura* Winn. (Diptera, Ceratopogonidae) and in some other Arthropods. Parasitol. Cambridge 13 1921 pp. 97–113 pls. iv–vi.

106.—Keilin, D. On a new Ciliate: *Lambornella stegomyiae* n. g. n. sp., parasitic in the body-cavity of the larvae of *Stegomyia scutellaris* Walker (Diptera, Nematocera, Culicidae). Parasitol. Cambridge 13 1921 pp. 216–224.

107.—Keiser, A. Die sessilen, peritrichen Infusorien und Suctorien von Basel und Umgebung. Rev. Suisse Zool. Genève 28 1921 pp. 221–341.

108.—Kepner, W. A. and Whitlock, W. C. Food reactions of *Amoeba proteus*. J. Exp. Zool. Philadelphia 32 1921 pp. 397–425 6 plates.

109.—Kofoid, C. A. and Swezy, O. On the free, encysted and budding stages of *Councilmania lafleurii*, a parasitic *Amoeba* of the human

- intestine. Univ. Calif. Publ. Zool. Berkeley 20 1921 pp. 169-198 pls. xviii-xxii (also in Proc. soc. exp. Biol. New York 18 1921 pp. 310-312).
- 110.—Kofoid, C. A. and Swezy, O. The free-living, unarmoured Dinoflagellates. Mem. Univ. Calif. Berkeley 5 1921 pp. 1-562 pls. i-xii & 388 text-figs.
- 111.—Koidzumi, M. Studies on the intestinal Protozoa found in the Termites of Japan. Parasitol. Cambridge 13 1921 pp. 235-309 pls. x-xv.
- Kolpakoff, F. A. *vide* Yakimoff, W. L.
- Korniloff, M. T. *vide* Yakinoff, W. L.
- Krosz, K. *vide* Nöller, W.
- 112.—Kudo, R. Microsporidia parasitic in Copepods. J. Parasitol. Urbana 7 1921 pp. 137-143.
- 113.—Kudo, R. On some Protozoa parasitic in fresh-water fishes of New York. J. Parasitol. Urbana 7 1921 pp. 166-174.
- 114.—Kudo, R. Studies on Microsporidia parasitic in mosquitoes.—II. J. Parasitol. Urbana 8 1921 pp. 70-77.
- 115.—Kudo, R. On the nature of structures characteristic of Cnidosporidian spores. Trans. Amer. Microsc. Soc. Menasha Wis. 40 1921 pp. 59-74.
- 116.—Kudo, R. On the effect of some fixatives upon Myxosporidian spores. Trans. Amer. Microsc. Soc. Menasha Wis. 40 1921 pp. 161-167.
- 117.—Kudo, R. Studies on Microsporidia, with special reference to those parasitic in mosquitoes. J. Morphol. Philadelphia 35 1921 pp. 153-193 5 pls.
- 118.—Kühn, A. Untersuchungen zur kausalen Analyse der Zellteilung. I. Teil. Zur Morphologie und Physiologie der Kernteilung von *Vahlkampfia bistadialis*. Arch. EntwMech. Leipzig 46 1920 pp. 259-327 2 plates.
- 119.—Labbé, A. Sur les modifications adaptatives de *Dunaliella salina* Dunal. C. R. Acad. sci. Paris 172 1921 pp. 1074-1076.
- 120.—Labbé, A. Le cycle évolutif de *Dunaliella salina*. C. R. Acad. sci. Paris 172 1921 pp. 1689 & 1690.
- 121.—Lacroix, E. Les Foraminifères silicieux des marnes oxfordiennes à Ammonites pyriteuses. Comptes-Rendu Soc. géol. France Paris 1920 pp. 169-171.
- La Frenais, H. M. *vide* Patton, W. S.
- 122.—Lamborn, W. A. A Protozoon pathogenic to mosquito-larvae. Parasitol. Cambridge 13 1921 pp. 213-215.
- 123.—Laveran, A. et Franchini, G. Sur un *Herpetomonas* du loir. Bull. soc. path. exot. Paris 14 1921 pp. 278-280.
- 124.—Laveran, A. et Franchini, G. Des Hématozoaires du gecko et spécialement de *Herpetomonas tarantolae*. Procédé simple de culture des *Herpetomonas*. Bull. soc. path. exot. Paris 14 1921 pp. 323-326.
- 125.—Laveran, A. et Franchini, G. Contribution à l'étude des insectes propagateurs de la flagellose des Euphorbes. Bull. soc. path. exot. Paris 14 1921 pp. 148-151.
- 126.—Lavier, G. Hémogrégarines, *Grahamella*, Spirochète et Trypanosome du campagnol indigène, *Microtus arvalis* Pallas. Bull. soc. path. exot. Paris 14 1921 pp. 569-576.
- 127.—Lavier, G. Flagellés parasites intestinaux du campagnol indigène, *Microtus arvalis* Pallas. Bull. soc. path. exot. Paris 14 1921 pp. 710-717.
- 128.—Lebailly, C. et Caillon, L. Le Trypanosome de *Bufo mauritanicus*. Arch. Inst. Pasteur Tunis 11 1919 pp. 28-30 1 plate.
- 129.—Léger, M. A peculiar pyrexia due to a Flagellate. J. trop. Med. London 24 1921 pp. 54-59. (English abstract of Zool. Rec. 1920 Protozoa No. 174.)
- 130.—Léger, I. et Hesse, E. Microsporidies à spores sphériques. C. R. Acad. Sci. Paris 173 1921 pp. 1419-1421.
- 131.—Léger, L. et Stankovitch, S. Sur la coccidiose des alevins de la carpe. C. R. Acad. sci. Paris 173 1921 pp. 742-744.
- 132.—Legroux, R. et Jimenez, J. Facteur de croissance dans les cultures de *Leishmania donovani*. C. R. Acad. sci. Paris 173 1921 pp. 1423-1425.

133.—Leiva, L. Observations on *Chilomastix intestinalis* Kuczinski. J. Parasitol. Urbana 8 1921 pp. 49–57 pl. vi.

Léobardy, J. de vide Agulhon.

134.—Lerche, M. Die Coccidiose der Schafe. Arch. Protistenkunde Jena 42 1921 pp. 380–399 pl. xviii.

135.—Lichtenstein, J. L. *Ophryoglena collini* n. sp., parasite coelomique des larves d'Ephémères. C. R. soc. biol. Paris 85 1921 pp. 794–796.

136.—Lichtenstein, J. L. *Hypocoma patellarum* n. sp., acinétién parasite de *Patella caerulea*. C. R. soc. biol. Paris 85 1921 pp. 796–799.

137.—Lindemann, E. Untersuchungen über Süßwasserperidineen und ihre Variationsformen. Arch. Naturgesch. Berlin 84 Abth. A. H. 8 1918 (1920) pp. 121–194.

Lodge, Olive vide Woodcock, H. M.

138.—Lohmann, H. Die Bevölkerung des Ozeans mit Plankton, nach den Ergebnissen der Zentrifugenfänge während der Ausreise der "Deutschland" 1911. Arch. Biontologie Berlin 4 H. 3 1920 pp. 1–617 16 pls. and many charts.

139.—Ludford, R. J. Protozoa and the evolution of the gregarious instinct. Nature London 107 1921 p. 332.

Lwoff, A. vide Chatton, E.

140.—Maplestone, P. A. Human intestinal Protozoa in North Queensland. Ann. Trop. Med. Parasitol. Liverpool 14 1921 pp. 283–293.

141.—Martinotti, A. Foraminiferi della spiaggia di Tripoli. Atti Soc. Ital. sci. nat. Milano 59 1921 pp. 249–334 pls. (i–iv) x–xiii & 176 text-figs.

142.—Massart, J. Recherches sur les organismes inférieurs. VIII. Sur la motilité des Flagellates. Bull. Acad. roy. Belg. Bruxelles 1920 pp. 116–141.

143.—Mayne, B. One or several species of malarial parasite? A review of recent work bearing on this question. Reprint No. 633 Public Health Dept. Washington 1921 15 pp.

144.—McDonagh, J. E. Someremarks on the development of the Leishman-Donovan bodies. J. trop. Med. London 24 1921 pp. 77–79.

145.—Mello, F. de. Protozoaires parasites du *Pachelabra moestra* Reeve. C. R. soc. biol. Paris 84 1921 pp. 241 & 242.

146.—Mercier, L. *Glugea gigantea* Thélohan. Réaction des tissus de l'hôte à l'infection. C. R. soc. biol. Paris 84 1921 pp. 261–264.

147.—Mesnil, F. Variété des voies d'accès des parasites sanguicoles à leurs hôtes. Bull. soc. path. exot. Paris 14 1921 pp. 310–315.

148.—Metcalf, M. *Opalina* and the origin of the Ciliate Infusoria. Journ. Washington Acad. Sci. 8 1918 pp. 427–431.

149.—Milojevic, B. D. Sur le protoplasma génératif chez *Gregarina cuneata*. C. R. soc. biol. Paris 84 1921 pp. 99 & 100.

150.—Milojevic, B. D. Sur les transformations du caryosome chez les Grégarines, à propos d'une nouvelle espèce: *Gregarina mrazeki*. C. R. soc. biol. Paris 85 1921 pp. 91–92.

151.—M'Lagan, F. Rhizopods of Perthshire. Trans. Proc. Soc. nat. sci. Perth 7 1921 pp. 91–103.

Moret, L. vide Gignoux, M.

152.—Mühlens, P. Beobachtungen über das Verhalten der Malaria-parasiten in der Anophelesmücke. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 58–61 pl. i.

153.—Nattan-Larrier, L. Héritéité des infections expérimentales à *Schizotrypanum cruzi*. Bull. soc. path. exot. Paris 14 1921 pp. 232–238.

154.—Nattan-Larrier, L. La schizotrypanosomiase américaine peut elle être transmise par contagion génitale? C. R. soc. biol. Paris 84 1921 pp. 773–775.

155.—Nattan-Larrier, L. Pénétration du Trypanosome de la dourine à travers les muqueuses et les téguments. C. R. soc. biol. Paris 84 1921 pp. 824–826.

156.—Neaverson, E. The Foraminifera of the Hartwell Clay and sub-jacent beds. Geol. Mag. London 58 1921 pp. 454–473 pl. ix.

Neaverson, E. vide Hollis, E.

- 157.—Nirenstein, E. Über das Wesen der Vitalfärbung [on *Paramoecium*]. Arch. ges. Physiol. Berlin 179 1920 pp. 233–337 1 text-fig. 1 plate.
- 158.—Nöller, W. Ueber einige wenig bekannte Darmprotozoen des Menschen und ihre nächsten Verwandten. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 35–46.
- 159.—Nöller, W., Krosz, K. und Arndt, A. Die Rhizopodenfauna des Pferdekotes und des Strassenstaubes in ihren Beziehungen zu Darmpassanten des Menschen. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 114–120.
- O'Connor, F. W. *vide* Dobell, C.
- 160.—Oehler, R. Wirkung von Bakteriengiften auf Ziliaten. Centralbl. Bakt. Jena Abth. 1 86 Orig. 1921 pp. 494–500; & *op. cit.* 87 Orig. 1921 pp. 302 & 303.
- 161.—Oesterlin, E. Bemerkungen zu P. G. Unnas und E. T. Wissigs Erwiderung auf meine Arbeit zur Chemie des Trypanosomenkerns. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 183–185.
- 162.—Oye, P. van. Zur Biologie der Kanne von *Nepenthes melampora* Reinw. Biol. Centralbl. Leipzig 41 1921 pp. 529–534.
- Parrot, L. *vide* Sergeant, Ed.
- 163.—Patten, M. W. The life history of an amiconucleate race of *Didinium nasutum*. Proc. Soc. Exp. Biol. Med. New York 18 1921 pp. 188–9.
- 164.—Patton, W. S. Studies on the Flagellates of the genera *Herpetomonas*, *Crithidia* and *Rhynchoidomonas*. Nos. 3 & 4. Ind. J. Med. Research Calcutta 8 1921 pp. 603–612 613–620 pls. xxxiv–xxxvi.
- 165.—Patton, W. S. Studies on the Flagellates of the genera *Herpetomonas*, *Crithidia* & *Rhynchoidomonas*. No. 7. Ind. J. Med. Research Calcutta 9 1921 pp. 230–239 pls. xvii–xix.
- 166.—Patton, W. S. La Frenais, H. M. and Rao, Sundara. Studies on the Flagellates of the genera *Herpetomonas*, *Crithidia* and *Rhynchoidomonas*. No. 6. Ind. J. Med. Research Calcutta 8 1921 pp. 629–632.
- 167.—Patton, W. S., La Frenais, H. M. and Rao, Sundara. Studies on the Flagellates of the genera *Herpetomonas*, *Crithidia* and *Rhynchoidomonas*. Nos. 8 & 9. Ind. J. Med. Research Calcutta 9 1921 pp. 240–254 pls. xx & xxi.
- 168.—Patton, W. S. and Rao, Sundara. Studies on the Flagellates of the genera *Herpetomonas*, *Crithidia* and *Rhynchoidomonas*. Nos. 2 & 5. Ind. J. Med. Research. Calcutta 8 1921 pp. 593–602 621–628 pls. xxxiii & xxxvii.
- 169.—Pavillard, J. Sur le *Gymnodinium pseudonocitiluca* Pouchet. C. R. Acad. sci. Paris 172 1921 pp. 868–870.
- 170.—Penard, E. Studies on some Flagellata. Proc. Acad. nat. sci. Philadelphia 73 1921 pp. 105–168 pls. v–viii.
- 171.—Penard, E. Études sur les Infusoires d'eau douce. Genève (Georg & Cie.) 1922 (1921) pp. 1–331 301 text-figs.
- Pérard, C. *vide* Chatton, E.
- 172.—Peters, R. A. The substances needed for a pure culture of *Colpidium colpoda*. J. Physiol. Cambridge 55 1921 pp. 1–32 14 figs.
- 173.—Peters, R. A. Variations in the resistance of protozoan organisms to toxic agents. J. Physiol. Cambridge 54 1920 pp. 260–266 6 figs.
- 174.—Phisalix, M. Coccidiose des serpents. Bull. Mus. Paris 1921 pp. 126–128.
- 175.—Phisalix, M. Coccidiose des serpents. Bull. soc. path. exot. Paris 14 1921 pp. 82–84.
- 176.—Pinoy, P. E. Sur la germination des spores, sur la nutrition et sur la sexualité chez les Myxomycètes. C. R. Acad. sci. Paris 173 1921 pp. 50 & 51.
- 177.—Playfair, G. I. Australian freshwater Flagellates. Proc. Linn. Soc. N.S.W. Sydney 46 1921 pp. 99–146 pls. i–ix.
- 178.—Poisson, R. *Cephaloidophora echinogammari* n. sp., Grégarine parasite du tube digestif d'*Echinogammarus berilloni* Catta. Répartition géographique de ce Gammaride. Remarque sur *Frenzelina mercieri* n. sp. C. R. soc. biol. Paris 84 1921 pp. 73–75.

- 179.—Poisson, R. Sur un Infusoire du genre *Balantidium*, parasite du tube digestif d'*Orchestia littorea* Mont. C. R. soc. biol. Paris 84 1921 pp. 333-335.
- 180.—Poisson, R. *Lankesteria cyclopori* n. sp., Grégarine parasite de *Cycloporus maculatus* P. Hallez. C. R. soc. biol. Paris 85 1921 pp. 967-969.
- 181.—Poisson, R. Grégarines de Crustacés Amphipodes. Sur les Grégarines parasites du tube digestif du *Gammarus pulex* L. C. R. soc. biol. Paris 85 1921 pp. 403-406.
- 182.—Pratje, A. *Noctiluca miliaris* Suriray. Beiträge zur Morphologie, Physiologie und Cytologie. I. Morphologie und Physiologie. (Beobachtungen an der lebenden Zelle.) Arch. Protistenkunde Jena 42 1921 pp. 1-98 pls. i-v.
- 183.—Pratje, A. Die verwandtschaftlichen Beziehungen der Cystoflagellaten zu den Dinoflagellaten. Zugleich ein Referat über Kofoid's neue *Noctiluca*-Arbeit (1920). Arch. Protistenkunde Jena 42 1921 pp. 422-438.
- 184.—Pratje, A. Makrochemische, quantitative Bestimmung des Fettes und Cholesterins, sowie ihrer Kennzahlen bei *Noctiluca miliaris*. Sur. Biol. Centralbl. Leipzig 41 1921 pp. 433-446.
- 185.—Pratt-Johnson, J. The differential diagnosis of malarial parasites in thick blood smears. J. trop. Med. London 24 1921 p. 6.
- 186.—Prell, H. Zur Theorie der sekretorischen Ortsbewegung. II. Die Bewegung der Gregarinen. Arch. Protistenkunde Jena 42 1921 pp. 157-175.
- Rao, Sundara vide Patton, W. S.
- 187.—Rees, C. W. The neuromotor apparatus of *Paramoecium*. Amer. Nat. Lancaster Pa. 55 1921 pp. 464-468.
- 188.—Reichenow, E. *Eutrichomastix lacertae* im Blut und in blut-saugenden Milben. Centralbl. Bakt. Jena Abth. 1 84 Orig. 1920 pp. 466-478 1 pl.
- 189.—Reichenow, E. Ueber das Vorkommen der Malariaparasiten des Menschen bei den afrikanischen Menschenaffen. Centralbl. Bakt. Jena Abth. 1 85 Orig. 1920 pp. 207-216 1 pl.
- 190.—Reichenow, E. Die Hämo-coccidien der Eidechsen. Vorbemerkungen und I. Theil: Die Entwicklungsgeschichte von *Karyolysus*. Arch. Protistenkunde Jena 42 1921 pp. 179-291 pls. vi-xiii. [Reprint, in German, of Zool. Rec. Protozoa 1920 No. 227.]
- 191.—Reichenow, E. Untersuchungen über das Verhalten von *Trypanosoma gambiense* im menschlichen Körper. Zs. Hyg. Leipzig 94 1921 pp. 266-385 pls. i & ii.
- 192.—Reitler, R. und Robicsek, H. Zur Kenntnis der Flagellaten im menschlichen Harn. Centralbl. Bakt. Jena I Abth. 84 1920 pp. 129-132 1 plate.
- 193.—Reuling, F. Zur Morphologie von *Trichomonas vaginalis* Donné. Arch. Protistenkunde Jena 42 1921 pp. 347-363 pl. xv.
- 194.—Reuling, F. und Rodenwaldt, E. *Giardia-Lambliä*? Arch. Protistenkunde Jena 42 1921 pp. 337-346.
- Robertson, A. vide Thomson, J. G.
- 195.—Robertson, T. B. Experimental Studies on Cellular Multiplication. I. The Multiplication of Isolated Infusoria. Biochem. Journ. Cambridge 15 1921 pp. 595-611 2 figs. II. The Influence of Mutual Contiguity upon reproductive rate and the part played therein by the "X-Substance" in Bacterised Infusions which stimulates the Multiplication of Infusoria. T.c. 612-619.
- Robicsek, H. vide Reitler, R.
- Rodenwaldt, E. vide Reuling, F.
- 196.—Schaefer, J. G. Die Totenstarre und ihre Beziehung zur Kontraktion. Biol. Centralbl. Leipzig 40 1920 pp. 316-334 4 figs.
- 197.—Schein, H. Coccidiose des Ruminants dans le Sud-Annam. Bull. soc. path. exot. Paris 14 1921 pp. 380-382.
- 198.—Schilling, C. Eine polymorphe kernige Amöbe. Arch. Protistenkunde Jena 42 1921 pp. 292-298.

- 199.—Schmidt, W. J. Untersuchungen über Bau und Lebenserscheinungen von *Bursella spumosa*, einem neuen Ciliaten. Arch. mikr. Anat. Bonn 95 1920 (1921) Abth. 1 pp. 1-36 pls. i-iv.
- 200.—Schrader, F. A Microsporidian occurring in the smelt. J. Parasitol. Urbana 7 1921 pp. 151-153 pl. xiv.
- 201.—Scott, H. H. The incidence of intestinal parasites, especially with regard to the Protozoa, amongst symptomless carriers in Jamaica. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 117-132.
- 202.—Scott, H. H. A study of the sizes of *Entamoeba histolytica*-cysts amongst symptomless carriers in Jamaica. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 133-148.
- 203.—Scott, H. H. A study of the sizes of *Entamoeba coli*-cysts amongst symptomless carriers in Jamaica. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 149-160.
- 204.—Sergent, Edm. Sur l'hypothèse de l'évolution des *Sarcocystis* du boeuf chez un Insecte hématophage, hôte définitif. C. R. soc. biol. Paris 85 1921 pp. 408-411.
- 205.—Sergent, Ed. Étude morphologique du *Piroplasma* (*Gonderia*) *mutans* du boeuf. Ann. Inst. Pasteur Paris 35 1921 pp. 193-203 pl. ii.
- 206.—Sergent, Et. Existence de *Leptomonas davidi* dans le latex d'euphorbiacées d'Algérie (*E. peploides*). Arch. Inst. Pasteur Afrique Nord 1 1921 p. 58.
- 207.—Sergent, Et. Hémogregarine (*Hepatoozon*) de l'écreuil de Gétulie. Arch. Inst. Pasteur Afrique du Nord Algiers and Tunis 1 1921 p. 56.
- 208.—Sergent, Et. Trypanosome isolé du sang d'un *Macacus sinicus*. Arch. Inst. Pasteur Afrique Nord 1 1921 p. 57.
- 209.—Sergent, Et. et Sergent, Edm. Formes leishmaniennes et leptomonadiennes chez les punaises de chauves-souris. C. R. soc. biol. Paris 85 1921 pp. 413-415.
- 210.—Sergent, Et. et Sergent, Ed. Essais de vaccination contre le paludisme des oiseaux dû au *Plasmodium relictum*. C. R. Acad. Sci. Paris 172 1921 pp. 296-298.
- 210a.—Sergent, Ed. et Ét. Étude expérimentale du Paludisme. Paludisme des oiseaux à *Plasmodium relictum*, transmis par *Culex pipiens*. Arch. Inst. Pasteur Afrique du Nord 1 1921 pp. 1-32.
- 211.—Sergent, Ed. et Sergent, Et., Parrot, L., Donatien, A. et Béguet, M. Transmission du clou de Biskra par le Phlébotome (*Phlebotomus papatasi* Scop.). C. R. Acad. Sci. Paris 173 1921 pp. 1030-1032.
- 212.—Sinton, J. A. Infection with *Nuttallia ninense* among hedgehogs in the North West Frontier Province, India. Ind. J. Med. Research Calcutta 9 1921 pp. 359-363 pls. xxvi & xxvii.
- 213.—Sokoloff, B. Contribution au problème de la vitalité des organismes. C. R. soc. biol. Paris 85 1921 pp. 1100 & 1101.
- 214.—Sokoloff, B. Sur la question de l'absorption chez les Protozoaires. La membrane d'Overton. C. R. soc. biol. Paris 85 1921 pp. 1102 & 1103.
- 215.—Sollas, W. J. On *Saccamina carteri* Brady, and the minute structure of the Foraminiferal shell. Q. J. Geol. Soc. London 77 1921 pp. 193-212 pl. vii.
- Solowzoff, A. S. vide Yakimoff, W. L.
- 216.—Spek, J. Der Einfluss der Salze auf die Plasmakolloide von *Actinosphaerium eichhorni*. Acta Zool. Stockholm 2 1921 pp. 153-200 6 pls.
- Spencer, H. vide Woodruff, L. L.
- 217.—Stankovitch, S. Sur quelques Coccidies nouvelles des poissons cyprinides. C. R. soc. biol. Paris 85 1921 pp. 1128-1130.
- 218.—Stauffacher, H. Zur Kenntniss des Erregers der Maul- und Klauen-seuche. Zs. wiss. Zool. Leipzig 118 1921 pp. 511-636 pls. xii & xiii.

- 219.—Stechow, E. Neue Genera und Species von Hydrozoen und anderen Evertibraten. Arch. Natg. Berlin **87** Abth. A. H. 3 1921 pp. 248–265.
- 220.—Steffan, P. Beobachtungen über den Verlauf der künstlichen Infektion der Ratte mit *Trypanosoma lewisi*. Arch. Schiff. Tropenhyg. Leipzig **25** 1921 pp. 241–247.
- 221.—Stempell, W. Haplosporidienstudien. I. Neue und wenig bekannte Parasiten aus *Herpetocypris strigata* O. F. Müll. Arch. Protistenkunde Jena **42** 1921 pp. 307–318.
- 222.—Sütterlin, T. Ueber die Einwirkung chemischer Stoffe auf freilebende Protozoen. Arch. Schiff. Tropenhyg. Leipzig **25** 1921 pp. 99–114.
- 223.—Taliaferro, W. H. Variation and inheritance in size in *Trypanosoma lewisi* I & II. Proc. Nat. Acad. Sci. Washington **7** 1921 pp. 138–143 163–168.
- 224.—Taylor, Monica and Hayes, Catherine. The technique of culturing *Amoeba proteus*. Journ. Roy. Microsc. Soc. London **1921** pp. 241–244.
- 225.—Tchahotine, S. Un dispositif pour la narcotisation des Infusoires et autres animaux microscopiques. C. R. soc. biol. Paris **85** 1921 pp. 228 & 229.
- 226.—Teodoro, G. *Herpetomonas pyrochoris* Zotta e *Leptomonas davidi* Lafont. Atti Accad. Sci. Padova **11** 1920 (1921) pp. 22–25.
- 227.—Thomson, J. G. and Robertson, A. Charcot-Leyden crystals in the stools as an aid to the diagnosis of amoebic dysentery. J. trop. Med. London **24** 1921 pp. 289–292 pls. i & ii.
- 228.—Trauth, F. Das Eozänvorkommen bei Radstadt im Pongau und seine Beziehungen zu den gleichalterigen Ablagerungen bei Kirchberg am Wechsel und Wimpasing am Leithagebirge. Anz. Akad. Wiss. Wien **54** 1917 pp. 84 & 85.
- 229.—Unna, P. G. und Wissig, E. T. Das Histion des Trypanosomenkerns. Eine Erwiderung. Arch. Schiff. Tropenhyg. Leipzig **25** 1921 pp. 141–144.
- 230.—Uribe, C. A common infusion Flagellate occurring in the caecal contents of the chicken. J. Parasitol. Urbana **8** 1921 pp. 58–65 pl. vii.
- 231.—Vandel, A. *Lankesteria planariae*, Grégarine parasite des Planaires d'eau douce. C. R. soc. biol. Paris **84** 1921 pp. 718 & 719.
- 232.—Van Saceghem, R. La trypanosomiase du Ruanda. C. R. soc. biol. Paris **84** 1921 pp. 283–286.
- 233.—Velu, K. La piroplasmose bovine au Maroc et ses rapports avec les piroplasmoses circumméditerranéennes. Bull. soc. path. exot. Paris **14** 1921 pp. 116–124.
- 234.—Vialatte, C. Sur des formes atypiques de *Plasmodium praecox* (*falciparum*). Arch. Inst. Pasteur Afrique Nord **1** 1921 pp. 236–239 1 pl.
- 235.—Voss, H. von. *Monocystis naidis* n. sp., eine neue Cölomgregarine der Oligochäten. Arch. Protistenkunde Jena **42** 1921 pp. 176–178.
- Wailes, G. H. vide Cash, J.
- 236.—Warren, S. *Trypanosoma lewisi* in Boston rats. J. Med. Res. Boston **42** 1921 pp. 419–437.
- Wassilewsky, W. J. (Mlle.) vide Yakimoff, W. L.
- 237.—Weisesnberg, R. Zur Wirthsgewebesableitung des Plasmakörpers der *Glugea anomala*-Cysten. Arch. Protistenkunde Jena **42** 1921 pp. 400–421 pl. xix.
- 238.—Weissenberg, R. *Lymphocystis*-studien (infektiöse Hypertrophie von Stützgewebesellen bei Fischen). Arch. mikr. Anat. Bonn **94** (Festschr. O. Hertwig) 1920 pp. 55–134 pls. iv–vii.
- 239.—Wenrich, D. H. The structure and division of *Trichomonas muris* (Hartmann). J. Morphol. Philadelphia **36** 1921 pp. 119–155 4 pls.
- 240.—Wenyon, C. M. The incidence and etiology of malaria in Macedonia. Journ. Royal Army Medical Corps London **37** 1921 pp. 83–108 172–192 264–277 352–365 5 pls.

241.—Woodcock, H. M. An introduction to the study of haematophagy. Journ. Royal Army Medical Corps London **37** 1921 pp. 321-341 418-431 6 pls.

242.—Woodcock, H. M. Endemicity of intestinal Protozoa. Brit. Med. J. London **1921** i pp. 363 & 364.

243.—Woodcock, H. M. Notes on coprozoic Flagellates. Arch. zool. exp. Paris **60** 1921 Notes et Rev. pp. 11-18.

243a.—Woodcock, H. M. Protozoa. In: Zool. Rec. London. **56** 1919 pp. 1-26.

244.—Woodcock, H. M. and Lodge, Olive. Parasitic Protozoa. In: British Antarctic ("Terra Nova") Expedition 1910 Nat. Hist. Rep. Zoology **6** i 1921 pp. 1-24 3 pls.

245.—Woodruff, L. L. The structure, life-history and intra-generic relationships of *Paramoecium calkinsi* sp. nov. Biol. Bull. Wood's Hole **41** 1921 pp. 171-180. (Also in Proc. Soc. exp. Biol. Med. New York **18** 1921 pp. 137 & 138.)

246.—Woodruff, L. L. The present status of the long-continued pedigree-culture of *Paramoecium aurelia* at Yale University. Proc. Nat. Acad. Sci. Washington **7** 1921 pp. 41-44.

247.—Woodruff, L. L. Micronucleate and amiconucleate races of Infusoria. J. Exp. Zool. Philadelphia **34** 1921 pp. 329-337.

248.—Woodruff, L. L. The food reactions of the infusorian *Spathidium spathula*. Proc. Soc. Exp. Biol. Med. New York **18** 1921 pp. 183-4.

249.—Woodruff, L. L. and Spencer, H. The early effects of conjugation on the division rate of *Spathidium spathula*. Proc. Soc. Exp. Biol. Med. New York **18** 1921 pp. 240-1.

250.—Woodruff, L. L. and Spencer, H. The survival value of conjugation in the life history of *Spathidium spathula*. Proc. Soc. Exp. Biol. Med. New York **18** 1921 pp. 303-4.

251.—Yabe, H. Notes on some Eocene Foraminifera. Sci. Rep. Imp. Univ. Sendai Japan ser. 2 (Geol.) **5** 1921 pp. 97-108 pls. xvi-xx.

252.—Yabe, H. First supplement to my Tertiary Rocks with Higher Foraminifera from Japan. J. Geol. Soc. Tokyo **28** 1921 p. 359 [Japanese].

253.—Yakimoff, W. L. Sur la question de l'*Uronema caudatum* Martini. Bull. soc. path. exot. Paris **14** 1921 pp. 555-556.

254.—Yakimoff, W. L. Les Protozoaires et les infections de l'intestin en Transcaucasie. Bull. soc. path. exot. Paris **14** 1921 pp. 649-652.

255.—Yakimoff, W. L. À propos de l'identification du trypanosome des chameaux du Turkestan russe. Bull. soc. path. exot. Paris **14** 1921 pp. 638-640.

256.—Yakimoff, W. L. et Kolpakoff, F. A. Les colites de l'homme dues aux Protozoaires. Bull. soc. path. exot. Paris **14** 1921 pp. 548-554.

257.—Yakimoff, W. L., Solowzoff, A. S. et Wassilewsky, W. J. (*Mlle.*). *Oicomonas granulata* n. sp. parasite de l'intestin de l'homme. Bull. soc. path. exot. **14** 1921 pp. 546-548

258.—Yakimoff, W. L., Wassilewsky, W. J. (*Mlle.*), Korniloff, M. T. et Zwietkoff, N. A. Flagellés de l'intestin des animaux de laboratoire. Bull. soc. path. exot. Paris **14** 1921 pp. 558-564.

Yarbrough, Nancy *vide* Barret, H. P.

259.—Yorke, W. Research into the trypanosomiasis-problem; a critical consideration of suggested measures (with discussion). Trans. R. Soc. trop. Med. London **14** 1920 pp. 31-59.

Zwietkoff, N. A. *vide* Yakimoff, W. L.

260.—Zotta, G. Un *Leptomonas* du type *L. davidi* Laf. chez les Euphorbes de France. C. R. soc. biol. Paris **85** 1921 pp. 226-228.

261.—Zotta, G. Sur la culture en milieu N.N.N. du *Leptomonas pyrrhocoris*. C. R. soc. biol. Paris **84** 1921 pp. 822-824.

262.—Zotta, G. Sur la transmission expérimentale du *Leptomonas pyrrhocoris* Z. chez des Insectes divers. C. R. soc. biol. Paris **85** 1921 pp. 135-137.

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Councilmania gen. n. (*Entamoebidae*) *lafleuri* sp. n., from Man, morphology and life-cycle, KOFORD & SWEZY Univ. Calif. Publ. Zool. 20 pp. 169-198 pls. xviii-xxii.

Endolimax williamsi Brug 1919 (synn. *Entamoeba butschlii* Prow., *Iodamoeba butschlii* (Prow., Dobell), regarded as the correct name of the I-cyst Amoeba, morphology compared, BRUG Arch. Schiffs. Tropenhyg. 25 pp. 47-58 4 text-figs.—*E. williamsi* (syn. *Iodamoeba butschlii*), the latter name regarded as best, although author admits *williamsi* is the correct specific name, NÖLLER Arch. Schiffs. Tropenhyg. 25 pp. 41 43.

Entamoeba tenuis Kuen. & Swell. 1917 (syn. *E. minutissima* Brug) regarded as a distinct species, note on morphology, NÖLLER Arch. Schiffs. Tropenhyg. 25 p. 38.—*E. coli*, notes on cysts, FISCHER Centralbl. Bakt. Abth. 1 86 Orig. pp. 491-494.—*E. coli* and *E. histolytica*, different sizes of cysts, SCOTT Ann. trop. Med. Parasitol. 15 pp. 133-160.

Hartmanella sp., a polymorpho-nuclear Amoeba, SCHILLING Arch. Protistenkunde 42 pp. 292-298 3 text-figs.

Iodamoeba wenyoni sp. n. Brumpt from pig, note on morphology, CAUCHEMEZ Bull. Soc. path. exot. 14 pp. 321 & 322 1 text-fig.—*Iodamoeba vide Endolimax*.

Labyrinthomyxa gen. n. (*Proteomyxidae*) *sauvageaui* sp. n. parasitic on *Laminaria*, morphology, plasmodia, DUBOSCQ C. R. soc. biol. 84 pp. 27-33 3 text-figs.

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Rhogostoma gen. n. (*Thecamoebidae*) *schüssleri* sp. n. morphology, division, BÉLÁR Arch. Protistenkunde 43 p. 305 pls. vi & vii.

Vahlkampfa bistadialis, morphology and nuclear division, KÜHN Arch. Entwicklungsmech. 46 pp. 259-327 2 pls. 21 text-figs.—*V. cruciata* sp. n. morphology, biology, homophagy, HOLLANDE Arch. Zool. exp. 60 N. et R. pp. 33-42 9 text-figs.—*V. niniae-kohl-yakimovi* sp. n. Transcaucasia, YAKIMOFF Bull. soc. path. exot. 14 p. 652.

(b) Foraminifera.

Foraminifera, Jamaica, CUSHMAN Proc. U.S. Nat. Mus. 59 pp. 47-82 pls. xi-xix.

Foraminifera, *Astrorhizidae* from Atlantic Ocean, CUSHMAN Bull. U.S. Nat. Mus. 104 pp. 1-111 pls. i-xxxix.

Foraminifera, Philippine and adjacent seas, CUSHMAN Bull. U.S. Nat. Mus. 100 vol. 4 pp. 1-608 100 pls.

Foraminifera, Tripoli, with new forms, MARTINOTTI Atti Soc. Ital. Sci. nat. 59 pp. 249-334 pls. x-xiii & 176 text-figs.

†Foraminifera, Lower Miocene, Florida, notes, CUSHMAN Prof. Papers U.S. Geol. Surv. 128 B pp. 67-74 pl. xi.

†Foraminifera, Eocene, Japan, YABE Sci. Rep. Imp. Univ. Sendai ser. 2 (Geol.) 5 pp. 97-108 pls. xvi-xx.

†Foraminifera, Hartwell Clay and subjacent beds, notes, NEAVEYSON Geol. Mag. 58 pp. 454-473 pl. ix.

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†*Cassidulina devonica* sp. n. Germany, CHAPMAN Journ. Roy. Microsc. Soc. 1921 p. 334 pl. viii fig. 8.

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†*Orbitoideae* particularly Cretaceous forms (*Orbitella*, *Omphalocyclus*, *Lepid-orbitoides*) systematic notes, DOUVILLE Bull. Soc. Géol. France sér. 4 20 pp. 209-232 pl. viii and text-figs.

†*Orbitopsella praecursor* (Gümb.) structure and relations with *Orbitolina*, GIGNOUX & MORET Bull. Soc. Géol. France Sér. 4 20 pp. 129-140 pl. vi.

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†*P. archaica* p. 334 pl. viii fig. 7, *seminis* p. 335 fig. 9, spp. n., Devonian Germany, CHAPMAN Journ. Roy. Microsc. Soc. 1921.

†*Polystomella chipolensis* sp. n. Miocene Florida p. 72 pl. xi fig. 3, CUSHMAN Prof. Papers U.S. Geol. Surv. 128 B.

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†*Saccaminopsis* gen. n. for *Saccamina carteri* Brady, minute structure of shell compared with other forms, SOLLAS Q. J. Geol. Soc. 77 pp. 193–212 pl. vii.

†*Sagenina expansa* sp. n. Eocene Japan, YABE Sci. Rep. Imp. Univ. Sendai ser. 2 (Geol.) 5 p. 98 pl. xvi figs. 3–5.

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(d) Radiolaria.

Styla nom. nov. for *Stylactis* Ehrbg. praeocc., STECHOW Arch. Naturges. chichte 87 Abth. A H. 3 p. 263.

3. SPOROZOA.

(a) Gregarinidea.

Monocystid Gregarines from earthworms, already briefly diagnosed and named (*vide* Zool. Rec. 55 1918 *Protozoa* p. 19) now fully described, COGNETTI DE MARTIIS Nova Guinea Rés. expéd. sci. néerl. 1912-1913 13 Zool. pp. 501-584 pls. xii-xv.

Caulleryella pipientis sp. n. morphology and life-cycle of this Schizogregarine, BUSCHKIEL Zool. Jahrb. Abth. Anat. 43 pp. 97-148 pls. iv & v.

Cephaloidophora echinogammari sp. n. note on, POISSON C. R. soc. biol. 84 p. 73.

Dirhynchocystis gen. n. (*Monocystidae*) *brasiliensis* sp. n. from *Fimoscolex*, COGNETTI DE MARTIIS Monit. zool. Ital. 31 p. 150 1 text-fig.

Gregarina anthici sp. n. note, KAMM J. Parasitol. 7 p. 177 text-fig. 1E & F.—*G. gammari* Dies., probably a *Cephaloidophora*, POISSON C. R. soc. biol. 85 p. 406.—*G. mrazeki* sp. n. from a Lepidopteran, brief diagnosis, MILOJEVIC C. R. soc. biol. 85 p. 91.

Lankesteria cyclopori sp. n. occurrence and notes on life-cycle, POISSON C. R. soc. biol. 85 pp. 967-969 10 text-figs.—*L. planariae* Labbé note on, VANDEL C. R. soc. biol. 84 pp. 718 & 719 5 text-figs.

Monocystis naidis sp. n., diagnosis, VOSS Arch. Protistenkunde 42 pp. 176-178.

Nematocystis almae sp. n. diagnosed, COGNETTI DE MARTIIS Monit. Zool. Ital. 31 p. 153 1 text-fig.

Selenidium parvum sp. n. from an undetermined Polychaete, morphology comparison with other species, WOODCOCK & LODGE Rep. "Terra Nova" Antarctic Exped. Zoology 6 p. 5 pl. i figs. 5-12.

Uradiophora Mercier, longissima (for *Gregarina l.*) from *Gammarus*, morphology, syzygies, distinctions from

Didymophyes, POISSON C. R. soc. biol. 85 pp. 403-406 12 text-figs.—*U. mercieri* for *Frenzelii mercieri* Poisson, POISSON C. R. soc. biol. 84 p. 75.

(b) Coccidiidea.

Adelea ovata, gamete-formation and life-cycle, GREINER Zool. Jahrb. Abth. Anat. 42 pp. 327-362 pls. xvi & xvii.—*A. pachelabrae* sp. n. notes on life-cycle, MELLO C. R. soc. biol. 84 p. 242.

Coccidium arloingi, from sheep, notes on life-cycle, LERCHE Arch. Protistenkunde 42 pp. 380-399 pl. xviii.—*C. a.*, from goats, Annam, note on, SCHEIN Bull. soc. path. exot. 14 pp. 380-382.—*C. brumpti* sp. n. from pig, characters and distinction from other forms, CAUCHEMEZ Bull. soc. path. exot. 14 pp. 645-648 1 text-fig.—*C. carpelli* sp. n. occurrence and diagnosis, LÉGER & STANKOVITCH C. R. Acad. sci. 173 pp. 742-744.—*C. cotti* p. 672 text-figs. 1-4, *piraudi* p. 673 figs. 5 & 6, spp. n., from *Cottus gobio*, diagnosed, GAUTHIER C. R. Acad. sci. 173.—*C. cyprinorum* p. 1128 text-figs 1-3, *cylindrospora* p. 1129 figs. 4 & 5, *soufiae* p. 1130 figs. 6 & 7, spp. n., from Cyprinid fishes, diagnosed, STANKOVITCH C. R. soc. biol. 85.—*C. suis* sp. n. mention only, NÖLLER Arch. Schiffs. Tropenhyg. 25 p. 44.—*C. de bliecki* n. sp. Douwes 1921 is a synonym of above, NÖLLER T.c. p. 45.—*C. zamenis* sp. n. and forms from other serpents, notes on oocysts, PHISALIX Bull. soc. path. exot. 14 pp. 82-84, also in Bull. Mus. 1921 p. 127.

Eimeria *vide* *Coccidium*.

(c) Haemosporidia.

Haemogregarina arvalis (Martoglio), note on schizogony, LAVIER Bull. soc. path. exot. 14 p. 569 text-figs. 1 & 2.—*H. brendae* Samb. and Seligm., from *Psammophis*, note on structure, DELANOË Bull. soc. path. exot. 14 pp. 451-453 1 text-fig.—*H. sp.*, from *Aspidophorus*, morphology of different forms, BELCOUR C. R. soc. biol. 85 pp. 837 & 838.

Hepatoozon gaelutium sp. n. note, SERGENT Arch. Inst. Pasteur Afrique Nord 1 p. 56.

Karyolysus zuluetai sp. n. mention only, REICHENOW Arch. Protistenkunde 42 p. 220 figs. 33 59 60.

Laverania malariae, with references to other forms, phases of development in *Anopheles* bionomics, WENYON Journ. R.A.M.C. 37 pp. 189-192 264-277 352-365 5 pls.—*L. m.* (syn. *Plasmodium falciparum*) notes on atypical forms, VIALATTE Arch. Inst. Past. Afr. Nord 1 pp. 236-239 1 pl.—*L. m.*, 2 types considered to occur, differential diagnosis, CRAIG Amer. J. trop. Med. 1 pp. 57-95 3 pls.; opinion against this view, DARLING T.c. pp. 397-408.

Malarial parasites, different types, morphology contrasted, ACTON, CURJEL & DEWEY Ind. J. Med. Res. 8 pp. 750-773 pls. xlii-xliv.—Malarial parasites, distinctions between, in thick smears, PRATT-JOHNSON J. trop. Med. 24 p. 6.—Malarial parasites, human, occurrence in African apes, notes on morphology, REICHENOW Centralbl. Bakt. Abth. 1 85 Orig. pp. 207-216 1 pl.—Malarial parasites, good figs. of situation of sporozoites in various parts of the Anopheline body, MÜHLENS Arch. Schiffs. Tropenhyg. 25 pp. 58-61 pl. i.

Nuttallia ninense (Yak.), from hedgehogs, India, morphology, SINTON Ind. J. Med. Res. 9 pp. 359-363 pls. xxvi & xxvii.

Piroplasma (Gonderia) mutans, morphology, SERGENT Ann. Inst. Pasteur 35 pp. 193-203 pl. ii.

Plasmodium vide under *Laverania*.

(d) Myxosporidia (including Microsporidia).

Cocconema gen. n. (Microsporidia), for certain types with spherical spores, *C. micrococcus*, *polyspora*, *octospora* and *slavinae* spp. n., from Insect-larvae and Oligochaete, diagnosed, LÉGER & HESSE C. R. Acad. sci. 173 pp. 1419-1421.

Glugea anomala, cyst-body with large nuclei derived from host, not parasite, WEISSENBERG Arch. Protistenkunde 42 pp. 400-421 pl. xix.—*G. (cf. hertwigi)* from smelt, notes on, SCHRADER J. Parasitol. 7 pp. 151-153 pl. xiv.

Myxidium moxostomatis sp. n. diagnosed, WARD J. Parasitol. 7 p. 172 text-figs. 22-25.

Nosema baetis sp. n. spore-formation, KUDO J. Morphology 35 p. 171 pl. v.—*N. cyclopsis* p. 137 text-figs. 1-7, *infirmum* p. 138 figs. 8-17, spp. n., KUDO J. Parasitol. 7.

Thelohania illinoisensis sp. n. in *Anopheles punctipennis*, *T. magna* Kudo in *Culex pipiens*, morphology and spore-formation, KUDO J. Morphol. 35 pp. 156-171 pls. i-iv.—*T. opacita* sp. n. from *Culex*-larvae, note, KUDO J. Parasitol. 8 p. 75 1 text-fig.

Wardia lucii sp. n. diagnosed, WARD J. Parasitol. 7 p. 166 text-figs. 1-9.

(e) Actinomoxidia.

[Vacant.]

(f) Sarcosporidia.

Sarcocystis blanchardi of cattle, dimorphism of spores (male and female ?) in blood, question of transmission by a sanguivorous Insect, SERGENT C. R. soc. biol. 85 pp. 408-411.

Allied to Cnidosporidia:—

Helicosporidium gen. n. *parasiticum* sp. n. from *Dasyhelea* (larva) and other Arthropods, life-cycle, KEILIN Parasitol. 13 pp. 97-113 pls. iv-vi.

(g) Haplosporidia.

Haplosporidia from *Herpetocypris strigata*, notes, STEMPPELL Arch. Protistenkunde 42 pp. 307-318 5 text-figs.

Serumsporidium oviforme sp. n., STEMPPELL Arch. Protistenkunde 42 p. 312 text-figs. 2 & 3.

Trachysporidium gen. n. (Haplosporidia) *mülleri* p. 315 text-fig. 4, *pfeifferi* p. 318 fig. 5, spp. n., STEMPPELL Arch. Protistenkunde 42.

SPOROZOA INCERTAE SEDIS.

(Various and doubtful.)

Cytamoeba bacterifera, from the frog, note on, HEGNER J. Parasitol. 7 pp. 157-161 8 text-figs.

Intracellular protozoan parasite, salivary gland of dog, JACKSON J. Inf. diseases 29 pp. 302-305 10 text-figs.

Kurloff-bodies, Negri-bodies, "*Rickettsia*"-bodies and other so-called "Chlamydozoa" are not of an organized nature but are the result of ingestion and alteration (attempted digestion) of red corpuscles or cells, WOODCOCK J. R.A.M.C. 37 pp. 335-341 418-431 2 pls.

Lymphocystis johnstonei Woodc., not a parasite but an enormously hypertrophied tissue-cell, WEISSENBERG Arch. mikr. Anat. 94 pp. 55-134 pls. iv-vii.

Toxoplasma of dog, schizogony in lung, BOËZ C. R. soc. biol. 85 pp. 1479-1482 1 text-fig.

4. MASTIGOPHORA.

(a) Flagellata.

Flagellates, near Geneva, with new forms, morphology and biological notes, PENARD Proc. Acad. nat. sci. Philadelphia 73 pp. 105-168 pls. v-viii.

Flagellates, fresh-water, Australia, with new forms, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Flagellates from Insects, notes on, PATTON Ind. J. Med. Res. 9 pp. 233-239 pls. xviii & xix.

Flagellates, intestinal from *Microtus arvalis*, notes on structure, LAVIER Bull. soc. path. exot. 14 pp. 710-717 5 text-figs.

A Flagellate, fam. *Tetramitidae* (perhaps a *Tetramitus*) from phagedenic ulcers, morphology, CLAPIER Bull. soc. path. exot. 14 pp. 208-211.

Flagellate, Bodo-like, but belonging to the *Eumonadidae*, from human urine, described, REITLER & ROBICSEK Centralbl. Bakt. Abth. 1 84 Orig. pp. 129-132 1 pl.

Alphamonas Alex., syn. *Spiromonas* Perty, WOODCOCK Arch. zool. exp. 60 N. et R. p. 15.

Anisonema hexagonum sp. n. p. 142 pl. ix fig. 19 with var. n. *elegans* fig. 20, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Archaeobodo bacillivora gen. n. sp. n. movement, MASSART Bull. Acad. Roy. Belg. 1920 p. 122 text-fig. 6.

Bicoeca exilis sp. n., PENARD Proc. Acad. nat. sci. 73 p. 117 pl. v figs. 9-13. (N-17041 e) q

Carteria excavata sp. n., MASSART Bull. Acad. Roy. Belg. 1920 p. 134 text-fig. 25.

Cercobodo primitiva sp. n. movement, MASSART Bull. Acad. roy. Belg. 1920 p. 119 text-fig. 2.

Chasmostomum nieupertense gen. n. sp. n., MASSART T.c. p. 123 text-fig. 7.

Chilomastix intestinalis Kuczinski morphology, LEIVA J. Parasitol. 8 pp. 49-57 pl. vi.

Chloramoeba, structure of this form, with special reference to the chromatophores, DOFLEIN Acta Zool. 2 pp. 431-443 2 pls.

Chromulina pyriformis p. 107 text-fig. 1f, *cuneata* p. 107 fig. 1g, spp. n., PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Chrysopsis sphagnorum sp. n., CONRAD Bull. Acad. roy. Belg. 1920 p. 186 text-fig. 11.

Coccolithophoridae, oceanic plankton, described, LOHMANN Arch. Biontol. 4 H. 3 pp. 77-136 text-figs. 17-41.

Colacium elongatum sp. n. p. 116 pl. iii figs. 4-6, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

"*Critithidia*" *melophagia* shown to be the Insectan phase of the sheep-Trypanosome (*T. melophagium*) confirmation of Woodcock's view and refutation of Porter & Swingle's erroneous view, HOARE Parasitol. 13 p. 67.—"*C. ctenocephali* sp. n. morphology and phases in life-cycle, PATTON & RAO Ind. J. Med. Res. 8 pp. 593-602 pl. xxxiii.

Cryptobia trematomi sp. n. morphology, distinction from *Trypanoplasma*, WOODCOCK & LODGE Rep. "Terra Nova" Antarctic Exped. Zoology 6 p. 2 pl. i figs. 1-4.

Cryptoglena australis, phacoidea, spp. n., p. 116 pl. v figs. 18 & 19, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Cryptomonas ampulla pl. ii fig. 24, *maxima* fig. 25 p. 114, *gemma* fig. 27, *oblonga* fig. 28 p. 115, spp. n., PLAYFAIR T.c.—*C. caudata* sp. n. movement, MASSART Bull. Acad. Roy. Belg. 1920 p. 120 text-fig. 3.

Dimastigomoeba vorax sp. n., MASSART T.c. p. 136 text-fig. 27.

Dimorpha tetramastix p. 111 pl. v figs. 4-6, *monomastix* p. 116 figs. 7, 8, spp. n., PENARD Proc. Acad. nat. sci. 73.

Dinenympha exilis p. 291 figs. 67, 68, *rugosa* p. 292 figs. 69-72, *nobilis* p. 292 figs. 73-75, *leidyi* p. 292 figs. 76, 77, *parva* p. 294 fig. 78, *porteri* p. 294 figs. 79-82, spp. n., from Japanese Termites, KOIDZUMI Parasitol. 13.

Diphylleia rotans gen. n. sp. n., MASSART Bull. Acad. Roy. Belg. 1920 p. 123 text-fig. 8.

Dunaliella salina, phases in life-cycle, LABBÉ C. R. Acad. sci. 172 pp. 1689 & 1690.

Eudorina elegans, cytology and division, biology, HARTMANN Arch. Protistenkunde 43 pp. 223-286 pls. i & ii.

Euglena guttula pl. iv fig. 17, with var. n. *elongata* fig. 18, *viuida* fig. 19 p. 122, *pusilla* figs. 20, 21, with var. n. *longa* fig. 22 p. 123, spp. n., *E. viridis* var. n. *purpurea* p. 117, *deses* varr. n. *minuta*, *gracilis* p. 118 pl. iii fig. 15, *oxyuris* var. n. *gracillima* p. 119 pl. iii fig. 19, *spirogyra* var. n. *elegans* p. 120 pl. iv fig. 4, *acutissima* varr. n. *parva*, *hyalina* p. 121 pl. iv figs. 7, 8, *texta* varr. n. *ovata* p. 121 fig. 13, *obesa* fig. 14, *bullata* figs. 15, 16 p. 122, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.—*E. inflata* sp. n., MASSART Bull. Acad. Roy. Belg. 1920 p. 141 text-fig. 29.—*E. pseudomermis* sp. n. p. 158 pl. viii figs. 62, 63, PENARD Proc. Acad. nat. sci. 73.

Giardia, this name retained for the genus, which is divided into 2 new subgenera, *G. s. str.* and *Lambia*, REULING & RODENWALDT Arch. Protistenkunde 42 pp. 337-346 2 text-figs.

Helkesimastix, note on presence of second (accessory) flagellum, WOODCOCK Arch. zool. exp. 60 N. et R. p. 11.

Herpetomonas pyrrochoris Zotta and *Leptomonas davidi* Lafont, notes on, comparison, TEODORO Atti Acad. sci. Padova 11 pp. 22-25.—*H. vide Leptomonas*.

Heterocapsa quinquecuspidata gen. n. sp. n., MASSART Bull. Acad. Roy. Belg. 1920 p. 124 text-fig. 9.

Histiona campanula sp. n. morphology, PENARD Proc. Acad. nat. sci. 73 p. 120 pl. vi figs. 14-19.

Holomastigotoides hartmanni sp. n., KOIDZUMI Parasitol. 13 p. 271 figs. 43-52.

Leishmania donovani and *tropica*, forms and phases in bed-bug, PATTON, LA FRENAIS & RAO Ind. J. Med. Res. 9 pp. 240-254 pls. xx & xxi.—*L. donovani*, developmental phases in bed-bug, ADIE Ind. J. Med. Res. 9 pp. 255-260 pls. xxii-xxv.

Lepocinclis cymbiformis pl. vi figs. 3, 4, *capitata* figs. 5, 6, *costata* figs. 7, 8 p. 128, with var. n. *obesa* p. 129 fig. 9, *paxilliformis* figs. 10, 11, *rugulosa* text-fig. 3, l, m, p. 129, spp. n., *L. ovum* varr. n. *australis*, *costata* p. 126 text-fig. 3b-d, *fusiformis* var. n. *caudata* p. 127 text-fig. 3, j, k, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Leptomonas craggi sp. n. from *Musca bezzii* described, PATTON Ind. J. Med. Res. 9 p. 232 pl. xvii.—*L. myoxi* sp. n. note on morphology, occurrence in organs, etc., LAVERAN & FRANCHINI Bull. Soc. path. exot. 14 pp. 278-280 1 text-fig.—*L. pachelabrae* sp. n. note, MELLO C. R. soc. biol. 84 p. 241.—*L. siphunculinae* sp. n. pp. 613-620 pl. xxxvi, PATTON Ind. J. Med. Res. 8.—*L. pulicis* sp. n. pp. 621-628 pl. xxxvii, PATTON & RAO T.c.—*L. tarentolae* sp. n. from gecko, morphology, cultivation, LAVERAN & FRANCHINI Bull. soc. path. exot. 14 pp. 323-326 1 text-fig.—*L. spp.* from *Chamaeleon*, *Gongylus* and *Tarentola*, intestine, notes, FRANCHINI Bull. soc. path. exot. 14 pp. 641-645.—*Leptomonad* and *leishmanial* phases in bugs of bats, SERGENT & SERGENT C. R. soc. biol. 85 pp. 413-415 1 text-fig.

Mallomonas australica sp. n. with varr. n. *gracillima*, *subglobosa* p. 109 pl. ii figs. 5-8, *M. splendens* var. n. *pusilla* p. 108 fig. 4, *M. litomesa* var. n. *curta* p. 109 fig. 10, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Mastigamoeba constans sp. n., MASSART Bull. Acad. Roy. Belg. 1920 p. 125 text-fig. 10.

Menoidium acutissimum p. 136 pl. viii fig. 3, *gracile* p. 137 figs. 4 & 5, spp. n., PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Microspironympha gen. n. (*Trichonymphidae*) *porteri* sp. n. from *Leucotermes*, KOIDZUMI Parasitol. 13 p. 268 figs. 32-38.

Notosolenus pentagonus sp. n. p. 142 pl. ix fig. 3, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Ochromonas aspera, cylindracea, spp. n., p. 112 pl. i figs. 14-16, PLAYFAIR T.c.

Oicomonas granulata sp. n. from man, intestine, YAKIMOFF, SOLOWZOFF & WASSILEWSKY Bull. soc. path. exot. 14 pp. 546-548 text-fig. 5.

Pararhizomastix gen. n. *hominis* sp. n. from man [may be a coprozoic form, really] note, YAKIMOFF & KOLPAKOFF Bull. soc. path. exot. 14 p. 553 text-fig. 4.

Peranema cuneatum pl. ix figs. 7-9, *asperum* fig. 14 p. 141, spp. n., PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Petalomonas coxydensis sp. n., MASSART Bull. Acad. Roy. Belg. 1920 p. 127 text-fig. 14B-D.

Phacus inflatus p. 124 pl. v figs. 12, 13, *lismorensis* p. 125 fig. 14, spp. n., *P. pleuronectes* var. n. *minutus*, *australis* p. 123 figs. 2, 3, *pyrum* var. n. *ovatus* fig. 15, *australicus* fig. 16, *rudicula* fig. 17 p. 125, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Piromonas rossica sp. n. from rabbit, YAKIMOFF, WASSILEWSKY, KORNILOFF & ZWIETKOFF Bull. soc. path. exot. 14 p. 563.

Pleuromonas jaculans Perty, from caecal contents of chicken, morphology, URIBE J. Parasitol. 8 pp. 58-65 pl. vii.

Podomastix gen. n. *fabacea* sp. n. organellae of locomotion, MASSART Bull. Acad. roy. Belg. 1920 p. 119 text-fig. 1.

Prismatomonas gen. n. *limax* sp. n. movement [this type looks to the Rec. very like *Helkesimastix* of which it is probably a synonym], MASSART T.c. p. 125 text-fig. 11.

Prymnesium gen. n. *saltans* sp. n., MASSART T.c. p. 133 text-fig. 24.

Pseudotrichonympha grassii sp. n. occurrence and morphology, KOIDZUMI Parasitol. 13 p. 255 figs. 14-23.—*P. pristina*, correct name for *Trichonympha* (*Holomastigotoides*) p., Imms, morphology, cytology described, CUTLER Quart. J. Micr. Sci. 65 pp. 247-264 pl. x.

(N-17041 e) q

Pyrsonympha grandis p. 281 figs. 54-64. *modesta* p. 289 figs. 65 & 66, spp. n., KOIDZUMI Parasitol. 13.

Reckertia gen. n. (near *Thaumatomastix*) *sagittifera* sp. n. a new flagellate possessing trichocysts, CONRAD Bull. Acad. roy. Belg. 1920 pp. 541-555 4 text-figs.

Rhynchoidomonas siphunculinae sp. n. morphology and phases in life-cycle, PATTON Ind. J. Med. Res. 8 pp. 603-612 pls. xxxiv & xxxv.

Salpingoeca ampullacea var. n. *cordata* p. 101 pl. i fig. 5, *amphoridium* var. n. *australis* p. 102 fig. 6, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.—*S. polygonatum* p. 123 pl. vi figs. 20-28, *lepidula* p. 127 figs. 29-40, spp. n., PENARD Proc. Acad. nat. sci. 73.

Schizotrypanum pipistrelli sp. n. phases of life-cycle, CHATTON & COURRIER C. R. soc. biol. 84 pp. 943-946 3 text-figs.

Scintilla gen. n. *Scintillaceae*), *chlorina*, *splendida* spp. n., p. 110 pl. ii figs. 12-15, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Scytomonas marina sp. n., MASSART Bull. Acad. Roy. Belg. 1920 p. 127 text-fig. 15.

Sphaeromonas rossica sp. n. from guinea-pig, intestine, note, YAKIMOFF, WASSILEWSKY, KORNILOFF & ZWIETKOFF Bull. soc. path. exot. 14 p. 559.

Sphenomonas australis p. 138 pl. viii fig. 11, with var. n. *elliptica*, *rhomboidea* p. 138 figs. 12 & 13, *triquetra* p. 139 fig. 20, with var. n. *cuneata* fig. 19, *excavata* p. 139 pl. ix. fig. 1, *spiralis* p. 140 fig. 2, with var. n. *angusta* fig. 3, *mirabilis* p. 140 figs. 4 & 5, spp. n., *S. teres* var. n. *pyriformis* p. 139 pl. viii figs. 16 & 17, *quadrangularis* var. n. *cruciformis* p. 138 fig. 10, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Spirotrichonympha leidy sp. n., KOIDZUMI Parasitol. 13 p. 275 figs. 41 & 42.

Syracosphaera atlantica sp. n., BUSCH Arch. Naturgesch. 85 Abth. A. H. 8 p. 51 2 text-figs.

Teratonympha gen. n. (*Trichonymphidae*) *mirabilis* sp. n. with var. n. *formosana* from *Leucotermes*, KOIDZUMI Parasitol. 13 p. 261 figs. 26-31.

Thallochrysis gen. n. (*Chrysomondina*) *pascheri* sp. n. described, CONRAD Bull. Acad. roy. Belg. 1920 p. 180 text-figs. 8-10.

Trachelomonas coronata p. 132 pl. vi figs. 29 & 30, *splendida* p. 132 pl. vii fig. 1, *paucispinosa* p. 133 fig. 6, *hesperia* p. 134 figs. 7, 11, *cuneata* p. 135 fig. 15, *lanceolata* p. 136 figs. 19, 20, *spiralis* p. 136 fig. 21, spp. n., *T. volvocina* varr. n. *planktonica* p. 129 pl. vi fig. 12, *scabra* p. 129 fig. 13, *coronetta* fig. 14, *pustulosa* fig. 15 p. 130, *botanica* var. n. *borealis* p. 130 fig. 16, *volzii* var. n. *sulcata* p. 131 fig. 23, *ampulla* varr. n. *gracilis* fig. 25, *elliptica* fig. 26 p. 131, *eurystoma* var. n. *parva* p. 131 fig. 28, *napiformis* var. n. *brevicollis* p. 135 pl. vii figs. 12-14, *gibberosa* varr. n. *longicollis* fig. 16, *tumida* fig. 17 p. 135, PLAYFAIR Proc. Linn. Soc. N.S.W. 46.

Trichomonas vaginalis Donné notes on morphology, REULING Arch. Protistenkunde 42 pp. 347-363 pl. xv.

Trichonympha agilis var. *japonica* p. 247 figs. 1-4, var. *formosana* p. 252 figs. 5-12, varr. nn., in Japanese Termites, KOIDZUMI Parasitol. 13.

Trichonymphidae from Japanese Termites, full account, KOIDZUMI T.c. pp. 235-309 pls. x-xv.

Trypanosoma bocagei França, from *Bufo mauritanicus*, morphology, LEBAILLY & CAILLON Arch. Inst Pasteur Tunis 11 pp. 28-30 1 pl.—*T. ninakohl-yakimovi* sp. n. name given to a camel-Trypanosome, Russian Turkestan, YAKIMOFF Bull. soc. path. exot. 14 p. 640.—*T. ruandae* sp. n. from cattle morphology, comparison with other forms, VAN SACEGHEM C. R. soc. biol. 84 pp. 283-286.—*T. talpae* Nabarro, note on morphology, DELANOË Bull. soc. path. exot. 14 pp. 453-455 1 text-fig.—*T.* spp. of types *dimorphon-congolense* and *brucei-pecaudi*, from cattle and horses, Italian Somaliland, morphology, *T. somalilense* and *cellii*, Martoglio, regarded as only mixed infections of above types, DONIZIO Bull. soc. path. exot. 14 pp. 423-433 2 text-figs.—*T.* sp. from *Vesperugo*, notes on different forms, stages in *Leiognathus*, FRANCHINI Bull. soc. path. exot. 14 pp. 542-546 2 text-figs.

Trypanosomes mammalian of Africa, polymorphic forms, question of species and strains in relation to biological considerations, DUKE Parasitol. 13 pp. 352-397.—A Trypanosome of *Schizotrypanum*-type, from *Vesperugo*, various phases described, CHATTON & COURRIER C. R. Acad. sci. 172 pp. 1254-1257.

(b) Silicoflagellata.

[Vacant.]

(c) Dinoflagellata

Dinoflagellates free-living, unarmoured, monographic account, KOFOID & SWEZY Mem. Univ. Calif. 5 1921 pp. 1-562 pls. i-xii and 388 text-figs.

Peridinida, fresh-water, variation-forms and new forms, LINDEMANN Arch. Naturgesch. 84 Abth. A. H. 8 pp. 121-194 200 text-figs.

Peridinida, from oceanic plankton, LOHMANN Arch. Biontol. 4 H. 3 pp. 137-172 text-figs. 42-46.

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Ceratum furca, note on, HARRIS Nature 108 p. 42.—The form regarded by him as *C. f.* really a variety of *C. hirundinella*, HARRIS T.c. p. 340.

Chilodinium cruciatum gen. n. sp. n., MASSART Bull. Acad. Roy. Belg. 1920 p. 126 text-fig. 12.

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Glenodinium marinum sp. n., MAS-SART Bull. Acad. Roy. Belg. 1920 p. 133 text-fig. 23.

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Noctilucidae, placed here by KOFOID & SWEZY T.c. (vide under *Rhynchoflagellata*).

Oxyrrhis marina Duj., account of nuclear division, infection with a parasite, DUNKERLY Proc. R. phys. Soc. Edinburgh 20 pp. 217–220 7 text-figs.

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(d) Rhynchoflagellata.

Noctiluca miliaris Suriray, general account of morphology, reproduction, physiology, from living observations, PRATJE Arch. Protistenkunde 42 pp. 1-98 pls. i-v.

Pavillardia gen. *n.* (*Noctilucidae*) *tentaculifera* sp. *n.* p. 404 fig. 114, KOFOID & SWEZY Mem. Univ. Calif. 5.

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(a) Ciliata.

Infusoria, neighbourhood of Geneva, new forms, PENARD Georg. & Cie. 1921 331 pp. 301 text-figs.

Infusoria, environs Calcutta, notes, GHOSH Bull. Carmichael Med. Coll. 2 pp. 6-17 1 pl.

Amphileptus utriculariae sp. *n.* p. 64 fig. 67, PENARD Georg. & Cie. 1921.

Anoplophrya elongata, variabilis, spp. *n.*, from freshwater Gastropods, GHOSH Bull. Carmichael Med. Coll. 2 p. 6 figs. 1 & 2.

Aspidisca marsupialis sp. *n.* p. 241 fig. 231, PENARD Georg. et Cie. 1921.

Balantiidiopsis gen. *n.* *musculicola* sp. *n.* p. 15 figs. 7 & 8, PENARD T.c.—*B. depressum* sp. *n.* from *Ampullaria*, GHOSH Bull. Carmichael Med. Coll. 2 p. 13 fig. 12.

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Bursella gen. *n.* (*Holotricha*, fam. *n.* *Gastruloidae*), *spumosa* sp. *n.* description, SCHMIDT Arch. mikr. Anat. 95 Abth. 1 pp. 1-36 pls. i-iv.

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Paramoecium calkinsi sp. n. morphology and inter-genetic relations, WOODRUFF Biol. Bull. 41 pp. 171-180 7 text-figs; also in Proc. Soc. exp. Biol. 18 p. 138.

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(b) Suctorina (Tentaculifera.)

Hypocoma patellarum *sp. n.* parasitic on gills of *Patella*, morphology, LICH-
TENSTEIN C. R. soc. biol. 85 pp. 796-
799 7 text-figs.

Sphenophrya *gen. n.* (*Sphenophryidae*
fam. n.) *dosinia* *sp. n.* forms in close
attachment to gills of *Acephala*,
morphology, CHATTON & LWOFF C. R.
Acad. sci. 173 pp. 1495-1497 5 text-figs.

PROTOZOA INCERTAE SEDIS.

[Various and doubtful.]

"*Aphthomonas infestans*," as the
cause of foot-and-mouth disease, com-
parison with *Haemoflagellates*, STAUF-
FACHER Zs. wiss. Zool. 118 pp. 511-
636 pls. xii & xiii.

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ARRANGED BY

H. M. WOODCOCK, D.Sc. (LOND.).

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 - 2.—**Bell, A.** Notes on the later Tertiary Invertebrata. Ann. Rep. Yorkshire phil. Soc. **1920** (1921) pp. 1-21 2 pls.
 - 3.—**Brøndsted, H. V.** Report on the Porifera collected by the Denmark Expedition at North-East Greenland. Meddel. Grønland Kjøbenhavn **43** 1917 pp. 473-484 pls. xxv & xxvi.
 - 4.—**Dendy, A.** The Tetraxonid sponge-spicule: a study in evolution. Acta Zool. Stockholm **2** 1921 pp. 95-152.
 - 5.—**George, W. C. & Wilson, H. V.** Sponges of Beaufort (N.C.) Harbour and Vicinity. Bull. U.S. Bureau Fisheries Washington **36** 1917-1918 (1921) pp. 129-179 pls. lvi-lxvi.
 - 6.—**Huxley, J. S.** Further studies on restitution-bodies and free tissue-culture in *Sycon*. Quart. Journ. Micr. Sci. London **65** 1921 pp. 293-322 pls. xiii & xiv.
 - 7.—**Huxley, J. S.** Differences in viability in different types of regenerates from dissociated sponges, with a note on the entry of somatic cells by spermatozoa. Biol. Bull. Wood's Hole **40** 1921 pp. 127-129.
 - 8.—**Kirkpatrick, R.** Note on a fresh water sponge from New Zealand. Ann. Mag. Nat. Hist. London ser. 9 **8** 1921 pp. 400 & 401.
 - 9.—**Oppliger, F.** Über neue Jura-spongien. Eclogae Geol. Helvet. Bâle **16** 1920 pp. 133-4.
 - 10.—**Oppliger, F.** Ueber neue Jura-spongien. Actes Soc. Helvet. sci. nat. **101** 1920 (1921) pp. 204 & 205.
 - 11.—**Stechow, E.** Neue Genera und Species von Hydrozoen und anderen Evertebraten. Arch. Naturgesch. Berlin **87** Abth. A. H. **3** 1912 pp. 248-265.
 - 12.—**de Stefani, C.** Silicospongie fossili della Liguria occidentale. Rend. R. Accad. Lincei Roma Ser. 5 **29** Sem. II 1920 pp. 379-381, **30** Sem. I 1921 pp. 103-106, 167-170, 264-268, 333-335, 372-375, Sem. II pp. 437-442.
 - 13.—**Stephens, J.** Sponges of the coast of Ireland. II. The Tetraxonida (concluded). Dept. Agric. Ireland Fisheries Branch Sci. Invest. Dublin **1920** No. II (1921) pp. 1-75 pls. i-vi.
 - 14.—**Topsent, E.** *Tethya aurantium* (Pallas) et les *Tethya* de Lamarck. Bull. Mus. Paris **1920** pp. 640-646.
 - 15.—**Willey, A. & Huntsman, A. G.** Faunal notes from the Atlantic biological station (1920). Canad. Field-Nat. Ottawa **35** 1921 pp. 1-7.
- Wilson, H. V.** vide George, W. C.
- 16.—**Woodcock, A. M.** Porifera. In : Zool. Rec. London **56** 1919 pp. 1-4.

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Sponges, Beaufort Harbour (N. Carolina) and vicinity, GEORGE & WILSON Bull. U.S. Fisheries Bureau 36 pp. 129–179 pls. lvi–lxvi.

(a) Myxospongida.

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(b) Hexactinellida.

†*Craticularia rugatum* sp. n., Jura, OPPLIGER Actes Soc. Helvet. sci. nat. 101 p. 204.†*Discophyma radiata* sp. n., Jura, OPPLIGER T.c. p. 204.*Polya* nom. nov. for *Polylophus* F. E. Sch. praecoc., STECHOW Arch. Naturgesch. 87 Abth. A. H. 3 p. 263.*Rhabdocalyptus arcticus* sp. n., Greenland, BRØNDSTED Meddel. Grønland 43 p. 477 pl. xxv, pl. xxvi figs. 1–7.

(c) Tetraxonida.

(i) HOMOSCLEROPHORA.

[Vacant.]

(ii) ASTROTETRAXONIDA.

Poterion atlantica sp. n., GEORGE & WILSON Bull. U.S. Fish. Bureau 36 p. 139 pl. lvi fig. 1, pl. lxvi fig. 51.*Spirastrella andrewsii* sp. n., GEORGE & WILSON T.c. p. 135 pl. lvi figs. 3, 6, 7, pl. lxvi fig. 49.*Suberites undulatus* sp. n., p. 140 pl. lvii figs. 8–11, pl. lxvi fig. 52, GEORGE & WILSON T.c.

(iii) SIGMATOTETRAXONIDA.

Sigmatomonaxonellida, from Irish coasts, described, STEPHENS Dept. Agric. Ireland, Fisheries Branch Sci. Invest. 1920 No. II 75 pp. 6 pls.

Acanthella corrugata sp. n. p. 161 pl. lxiii fig. 37, pl. lxv figs 46, 47, pl. lxvi fig. 56, GEORGE & WILSON Bull. U.S. Fish. Bureau 36.*Axinella acanthifera* sp. n. p. 159, pl. lxii fig. 34, pl. lxiii figs. 38, 39, pl. lxvi fig. 59, GEORGE & WILSON T.c.†*Chonophyma* gen. n. *perforata* sp. n. Jura, OPPLIGER Actes. Soc. Helvet. sci. nat. 101 p. 204.†*Cnemidiastrum expansum*, *linguiformis* spp. n. Jura, OPPLIGER T.c. p. 205.*Esperiopsis obliqua* sp. n. p. 148 pl. lx figs. 20–23, pl. lxvi fig. 58, GEORGE & WILSON Bull. U.S. Fish. Bureau 36.*Ephydatia kakahuensis* from New Zealand, note on, KIRKPATRICK Ann. Mag. Nat. Hist. ser. 9 8 p. 400 1 text-fig.*Halichondria tenuispiculata* sp. n., Greenland, BRØNDSTED Meddel. Grønland 43 p. 479, pl. xxvi fig. 8.*Higginsia pyriformis* sp. n. Greenland, BRØNDSTED T.c. p. 481 pl. xxvi figs. 9 & 10.†*Hyaloderma* gen. n. *porata* sp. n., Jura, OPPLIGER Actes Soc. Helvet. sci. nat. 101 p. 204.†*Hyalotragos nodosa* sp. n., Jura, OPPLIGER T.c. p. 205.

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OPPLIGER Actes Soc. Helvet. sci. nat.
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†*Subularia* gen. n. *clavaeformis* sp. n.,
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GEORGE & WILSON Bull. U.S. Fish.
Bureau 36.

Tethya aurantium (Pallas) and
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synonymy, TOPSENT Bull. Mus. 1920
pp. 640-646.

(iv) LITHISTIDA.

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(d) Euceratosa.

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IV. COELENTERATA

ARRANGED BY

A. KNYVETT TOTTON.

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2.—Bedot, M. Notes systématiques sur les Plumularides. Rev. Suisse Zool. Genève 29 1921 pp. 1–40.

3.—Bell, A. Notes on the later Tertiary Invertebrata. Ann. Rep. Yorkshire Phil. Soc. for 1920 1921 21 pp. 2 pls.

4.—Benoit, P. Les gonophores femelles de *Tabularia mesembryanthemum* Allm. C. R. Acad. Sci. Paris 173 1921 pp. 171–4.

5.—Billard, A. Note sur une variété de *Sertularella* (*Sertularella diaphana madagascariensis*) Bul. Museum Paris for 1921 1921 pp. 184–6 t.f.

6.—Bodensky, M. Biochemical studies on marine organisms. II. The occurrence of zinc. J. Biol. Chem. New York 44 1920 pp. 399–407.

7.—Boecker, E. Regenerationsversuche an knospen Hydren. Biol. Centralbl. Leipzig 41 1921 pp. 119–121.

8.—Briggs, E. A. A crawling jelly-fish from Port Jackson. Austral. Mus. Mag. Sydney 1 1921 pp. 20–21 fig.

9.—Cary, L. R. Studies on the physiology of the nervous system of *Cassiopea xamachana*. Papers Dept. Marine Biol. Carnegie Inst. Washington 11 1921 pp. 121–170.

10.—Cary, L. R. A study of respiration in *Alcyonaria*. Papers Dept. Marine Biol. Carnegie Inst. Washington 12 1918 pp. 187–191.

11.—Cayeux, L. Existence de nombreux spicules d'Alcyonaires dans les minerais de fer jurassiques de France. C. R. Acad. Sci. Paris 172 1921 pp. 987–8.

12.—Charlesworth, J. K. Ueber unterdevonische Riffforallen aus den Kanarischen Alpen. Jahresber. Ges. vaterl. Cultur Breslau for 1914 1 (6) c. 1915 pp. 170–209.

13.—Chapman, F. On the occurrence of *Tetradium* in the Gordon River Limestone, Tasmania. Rec. geol. surv. Tasmania Hobart 5 1919 pp. 5–10.

14.—Chapman, F. New or little-known Victorian fossils in the National Museum. Proc. R. Soc. Victoria 33 (N.S.) 1921 pp. 212–225 3 pls.

15.—Child, C. M. The axial gradients in *Hydrozoa*. Biol. Bull. Wood's Hole Mass. 41 1921 pp. 78–97.

16.—Clark, F. W. & Wheeler, C. The Inorganic Constituents of Marine Invertebrates. Prof. Paprs. U.S. geol. surv. Washington 102 1917 pp. 1–56.

17.—Clarke, J. M. Organic dependence and disease. New York State Mus. Bul. Albany Nos. 221 222 1921 pp. 113 figs.

18.—Collip, J. B. The alkali reserve of marine fish and invertebrates. The excretion of carbon dioxide. J. Biol. Chem. New York 44 1920 pp. 329–344.

19.—Cotte, J. Sur le phototropisme des Actinies. C. R. Soc. biol. Paris 85 1921 pp. 188–192.

20.—Dantan, J. L. Recherches sur les Antipathaires. Arch. anat. microsc. Paris 17 1921 pp. 137–245 pls. 12–21 t.f.

21.—Davis, W. M. Koraalriffen en bodembewegingen. Nat. Tijdschr. Batavia 79 1919 pp. 27–40 t.f.

22.—Davis, W. M. Coral reefs and crustal movements. Nat. Tijdschr. Batavia 79 1919 pp. 40–45.

23.—Davis, W. M. The coral reefs of Tutuila, Samoa. Science New York N.Y. 53 1921 pp. 559–565.

24.—Dehorne, Y. Répartition des Chaetétidés et des Stromatoporidés dans les terrains crétacés de la Basse-Provence. C. R. soc. géol. France Paris for 1918 1918 pp. 39–40.

25.—Dietrich, W. O. Gegenantwort an Herrn Heritsch (see 44 p. 30). Centralbl. Min. Stuttgart for 1921 1921 pp. 31 & 32.

- 26.—Felix, J. Über *Hydnophyllia* und einige andere Korallen aus dem vicentinischen Tertiär. SitzBer. natf. Ges. Leipzig 43 and 44 1918 pp. 1-30 1 pl.
- 27.—Frech, F. Geologie Kleinasien im Bereiche der Bagdadbahn Ergebnisse eigener Reisen und paläontologische Untersuchungen. Zs. D. Geol. Ges. Berlin A 63 1916 pp. 1-325 24 plates 4 t.ff.
- 28.—Fritzsche, G. H. Neue Kreidafaunen aus Südamerika. Centralbl. Min. Stuttgart for 1921 1921 pp. 272-7.
- 29.—Fulton, J. F. Concerning the vitality of *Actinia bermudensis*; a study in symbiosis. J. Exp. Zool. Philadelphia 33 1921 pp. 353-364.
- 30.—Gemmill, J. F. The life-history of *Meliceridium octocostatum* (Sars), a Leptomedusan with a theca-loss Hydroid stage. Q. J. Microsc. Sci. London 65 1921 pp. 339-347 pl. 16.
- 31.—Gemmill, J. F. The development of the Sea Anemone *Bolocera tuediae* (Johnst.). Q. J. Microsc. Sci. London 65 1921 pp. 577-587 pl. 22.
- 32.—Gemmill, J. F. Notes on food capture and ciliation in the ephyrae of *Aurelia*. Proc. R. Phys. Soc. Edinburgh 20 1921 pp. 222-225 t.ff.
- 33.—Goetsch, W. Neue Beobachtungen und Versuche an *Hydra*. Biol. Centralbl. Leipzig 40 1920 pp. 458-472 4 figs.
- 34.—Goetsch, W. Beiträge zum Unsterblichkeitsproblem der Metazoen. I. Teil. Unsterbliche Hydren? Biol. Centralbl. Leipzig 41 1921 pp. 374-381 3 figs.
- 35.—Goetsch, W. Ungewöhnliche Arten von Nahrungsaufnahme bei Hydren. Biol. Centralbl. Leipzig 41 1921 pp. 414-422 7 figs.
- 36.—Gortani, M. Osservazioni sulle impronte medusoidi del Flysch (*Lorenzina atollites*). Riv. Ital. Paleont. Parma 26 1920 pp. 56-72 2 pls.
- 37.—Gortani, M. Sulle impronte medusoidi del Flysch. Riv. Ital. paleont. Parma 27 1921 pp. 9-10.
- 38.—Gregory, J. W. Fossil corals from British East Africa; in Gregory, The Rift Valleys and Geology of East Africa London 1921 479 pp. 20 pls.
- 39.—Grobbe, H. K. [Adriatic *Medusae* collected by S. M. S. Najade.] Anz. Ak. Wiss. Wien 52 1915 pp. 2-5.
- 40.—Hanitsch, P. Über die Eigenart und Entstehung der Vermehrungsweise durch achorale und orale Proliferation bei Narcopolypen und Scyphopolypen. Studien über den Generationswechsel. Zool. Jahrb. Jena Abt. f. Anat. 42 1921 pp. 363-410 16 t.ff.
- 41.—Harvey, E. N. The chemistry of light-production in luminous organisms. [Studies on a Pennatulid, *Cavernularia haberi*.] Papers Dept. Marine Biol. Carnegie Inst. Washington 11 1921 pp. 202-209.
- 42.—Hatai, S. On the composition of *Cassiopea xamachana* and the changes in it after starvation. Papers Dept. Marine Biol. Carnegie Inst. Washington 11 1921 pp. 95-109.
- 43.—Harowitz, F. Untersuchung des Fetts der Gonaden von *Rhizostoma cuvieri*. Hoppe-Seylers Zs. physiol. Chem. Stuttgart 112 1920 pp. 28-37.
- 44.—Heritsch, F. Bemerkung zu Dietrich's Aufsatz über die sog. Tabulaten des Jura und der Kreide. Centralbl. Min. Stuttgart for 1921 1921 pp. 30 & 31.
- 45.—Heritsch, F. Zwei neue Tabulaten aus dem alpinen Mesozoicum. Centralbl. Min. Stuttgart for 1921 1921 pp. 564-571 3 t.ff.
- 46.—Heyne, H. Zur Kenntnis der Siphonophoren. Jenaische Zs. Natw. 54 1916 pp. 67-100 2 pls.
- 47.—Hickson, S. J. On some Aleyonaria in the Cambridge Museum. Proc. Cambridge Phil. Soc. 20 1921 pp. 366-373 t.f.
- 48.—Holtedahl, O. Notes on the Ordovician fossils from Bear Island collected during the Swedish expeditions of 1898 and 1899. Norsk Geol. Tidsskr. Christiania 5 1918 pp. 79-94 3 plates 3 t.f.
- 49.—Horst, C. J. van der. The *Madreporaria* of the Siboga Expedition. Part II. *Madreporaria Fungida*. Rés. explorations zool. botan. océanogr. geol. Indes Néerl. orient. Siboga Max Weber Livr. 90 Monogr. 16 B 1921 46 pp. 6 pls.

50.—Hundt, R. Untersilurische Graptolithenformen (*Glossograptus*, *Dicranograptus*, *Dictyonema*) im Ostthüringer Mittel und Obersilur. Centralbl. Min. Stuttgart for 1920 1920 pp. 21–4 t.f.

Huntsman, A. G. See Willey, A.

51.—Jaekel, O. Palaeontologische Berichte . . . Über die organisation der Anthozoen. Palaeont. Zs. Berlin 2 1916 pp. 232–250 14 figs.

52.—Joseph, H. Ein *Gonionemus* aus der Adria. SitzBer. Ak. Wiss. Wien 127 1918 pp. 95–158 1 pl. t.f.

53.—Keilhack, K. Über das Alte von *Thamnastraea concinna* Gf. Centralbl. Min. Stuttgart for 1920 1920 pp. 445–447.

54.—Komai, T. Notes on the two Japanese Ctenophores *Lampetia pancerina* Chun and *Berœ ramosa* n. sp. Annot. Zool. Jap. Tokyo 10 1921 pp. 15–18 t.f.

55.—Krempf, A. *Coeloplana gonotena*, biologie, organisation, développement. Bull. biol. France Belgique Paris 54 1921 pp. 252–312 pl. 5.

56.—Kückenthal, W. *Alcyonaria* des Roten Meeres. [Fortsetz. Ber. Komm. oceanogr. Forsch. Roten Meere . . . 1895/6–1897/8 . . . S.M.S. "Pola" . . . xxix]. Denkschr. Ak. Wiss. Wien 89 1914 pp. 33, 3 pls t.f.

57.—Lameere, A. Notes de zoogénie III. Origine et évolution des acalèphes. Ann. Soc. roy. Zool. malac. Bruxelles 51 1921 pp. 58–62.

58.—Light, S. F. Further notes on Philippine Scyphomedusan jellyfishes. Philippine J. Sci. Manila, P.I. 18 1921 pp. 25–45.

59.—Low, J. W. Variation in ephyrae of *Aurelia aurita*. Proc. R. Phys. Soc. Edinburgh 20 1921 pp. 226–235 t.f.

60.—Lüttschwager, J. Beiträge zu einer Revision der Familie *Alcyoniidae*. Arch. Natg. Berlin for 1914 A 10 1915 pp. 1–42 figs.

61.—Mayer, A. G. Nerve-conduction in *Cassiopea xamachana*. Papers Dept. Marine Biol. Carnegie Inst. Washington 11 1917 pp. 1–20 figs.

62.—Mayer, A. G. Nerve conduction in diluted and in concentrated seawater. Papers Dept. Marine Biol. Carnegie Inst. Washington 12 1918 pp. 181–186.

63.—Mayer, A. G. Effect of diminished oxygen upon rate of nerve conduction in *Cassiopea*. Amer. J. Physiol. Baltimore 51 1920 pp. 543–549 3 figs.

64.—Molander, A. R. Alcyonarien von Madagaskar. Ark. Zool. Stockholm 14 1921 No. 2 pp. 1–13 2 t.f.

65.—Moser, F. Die Siphonophoren der Adria und ihre Beziehungen zu denen des Weltmeeres. SitzBer. K. Akad. Wiss. Wien I 126 No. 9 1917 pp. 703–763 4 pls. t.f.

66.—Moser, F. Die Siphonophoren der Adria und ihre Beziehungen zu denen des Weltmeeres. Anz. Ak. Wiss. Wien 54 1917 pp. 112–113.

67.—Myers, R. G. A chemical study of the blood of several invertebrate animals. J. Biol. Chem. New York 41 1920 pp. 119–135.

68.—Nutting, C. C. Barbados-Antigua Expedition. [Narrative . . . report of a zoological expedition . . . Lesser Antilles . . .] Bul. Lab. Nat. Hist. Univ. Iowa City 8 3 1919 pp. 274 50 pls.

69.—Oppenheim, P. Über eine *Madrepora* (*M. meyni* n. sp.) aus dem nord-deutschen Diluvium. Zs. D. Geol. Ges. Berlin 69 B 1918 pp. 184–190.

70.—Oppenheim, P. Über Hydractinien aus den mitteleocänen Tuffen von San Giovanni Ilarione in Venetien. Zs. D. Geol. Ges. Berlin A 72 1921 pp. 145–160 1 pl. t.f.

71.—Pérez, C. Un élevage de scyphostomes de *Cyanea capillata*. Bull. Biol. France Belgique Paris 54 1921 pp. 168–178 4 pls.

72.—Plate, L. II. Übersicht über biologische Studien auf Ceylon [Fauna ceylanica . . .]. Jenaische Zs. Natw. 54 1916 pp. 1–42.

73.—Poche, F. Das System der *Coelenterata*. Arch. Natg. Berlin for 1914 A 5 1914 pp. 47–128.

- 74.—Poche, F. Einige Bemerkungen zur Synonymie der *Hydridea*. Arch. Natg. Berlin A 85 pt. 5 1920 pp. 62–68.
- 75.—Raymond, P. E. The History of corals and the "limeless" Oceans. Amer. J. Sci. New Haven Conn. (5) 2 1921 pp. 343–7.
- 76.—Schaefer, J. G. Untersuchungen am Medusen. I. Tiel. Arch. ges. Physiol. Berlin 188 1921 pp. 49–59 2 figs.
- 77.—Schimbke, G. O. Studien zur Anatomie der Gorgonaceen. Arch. Natg. Berlin A 80 pt. 11 1914 pp. 1–81 4 pls.
- 78.—Schulze, P. Die Hydroiden der Umgebung Berlins mit besonderer Berücksichtigung der Binnenlandformen von *Cordylophora*. Biol. Centralbl. Leipzig 41 1921 pp. 211–237 6 figs.
- 79.—Scott, A. The vestlet anemone, *Cerianthus lloydii*, Gosse. Ann. Rep. Mar. Biol. Stat. Port Erin Liverpool 35 1921 pp. 18–20.
- 80.—Stechow, E. Ein beachtenswertes Hydrozoen-Genus. Centralbl. Min. Stuttgart for 1920 1920 pp. 401–405 2 t.ff.
- 81.—Stechow, E. Neue Ergebnisse auf dem Gebiete der Hydroidenforschung II, III. Münchener Mediz. Wochenschrift München 68 1921 pp. 30 & 897.
- 82.—Stechow, E. Neue Genera und Species von Hydrozoen und anderen Evertabraten. Arch. Natg. Berlin for 1921 A 3 1921 pp. 248–265.
- 83.—Stephenson, T. A. On the classification of Actiniaria II. Q. J. Microsc. Sci. London 65 1921 pp. 493–576.
- 84.—Stiasny, G. Studien über Rhizostomeen... Capita Zool.'s Gravenhage 1 2 1921 pp. viii + 179 5 pls. t.ff.
- 85.—Stiasny, G. [Results of Dr. E. Mjöberg's Swedish scientific expeditions to Australia, 1910–1913.] xxx. Scyphomedusen. K. Svenska Vet. Ak. Handl. Stockholm 62 pt. 2 1921 pp. 1–12 t.ff.
- 86.—Stiasny, G. Mittheilungen über Scyphomedusen. I. Zool. Meded. Leiden 6 1921 pp. 109–113 t.ff.
- 87.—Taricco, M. Rinvenimento di *Dictyonema* nel Cambriano della Sardegna. Boll. Soc. geol. ital. Roma 39 1920 pp. 39–40.
- 88.—Tattersall, W. M. Sponges, Polyzoa, Hydroids and Crustacea from Lancashire and Cheshire. Lancs. Ches. Nat. 14 pt. 2 1921 pp. 9–11.
- 89.—Thomas, L. J. Morphology and orientation of the otocysts of *Gonionemus*. Biol. Bull. Wood's Hole Mass. 40 1921 pp. 287–298 1 pl. t.ff.
- 90.—Thomson, S. South African *Alicyonacea*. Trans. R. Soc. South Africa Cape Town 9 1921 pp. 149–175 pls. v-vi.
- Townsend, M. T. See Weese, A. O.
- 91.—Vaughan, T. W. The geologic significance of the growth-rate of the Floridan and Bahaman shoal-water corals. J. Washington Acad. Sci. 5 1915 pp. 591–600.
- 92.—Vaughan, T. W. Corals from the Cannonball marine member of the Lance formation. Prof. Papers U.S. Geol. Surv. Washington 128 A 1920 pp. 61–66 1 pl.
- 93.—Vaughan, T. W. The Reef-coral Fauna of Carrigo Creek, Imperial County, California, and its significance. Prof. Papers U.S. Geol. Surv. Washington 98-T 1916 pp. 355–395 10 plates t.ff.
- 94.—Vetters, H. Über eine Tabulate Koralle und eine Stromatopore aus den mesozoischen Kalken Dalmations (Insel Cazza). [In Ginzberger, A. Beiträge zur Naturges. d. Scoglii u. kleineren Inseln Süddalmations . . . I.] Denkschr. Ak. Wiss. Wien 92 1916 pp. 295–8 Taf. 8.
- 95.—Vinassa de Regny, P. Coralli Mesodevonici della Carnia. Palaeontogr. Italica Pisa 24 1918 pp. 59–120 7 pls. t.ff.
- 96.—Vincent, E. Description d'un polypier nouveau des sables de Wemmel (*Turbinolia gerardi*). Ann. soc. roy. zool. malac. Bruxelles 51 1921 pp. 55–57.
- 97.—Waddington, H. J. (Invertebrate marine fauna of Bournemouth and district.) [In Bournemouth Natural Science Soc., A Natural History of . . . district . . . Bournemouth 1914 pp. v + 400, 19 pls.]
- 98.—Weese, A. O. and Townsend, M. T. Some reactions of the jelly-fish *Aequoria*. Publ. Puget Sound Biol. Stn. Seattle 3 1921 pp. 117–128.

Wheeler, C. *vide* Clarke, F. W.

99.—Will, L. Die Volumenreduktion der Nesselkapsulen bei der Explosion und infolge "Alterns." Anat. Hefte, Wiesbaden, 1. Abth. 57 1919 pp. 483-545 4 plates 5 t. ff.

100.—Willey, W. and Huntsman, A. G. Faunal notes from the Atlantic Biological Station (1920). Canadian Field-Nat. Ottawa 35 1921 (1) pp. 1-7.

101.—Wilson, A. E. The range of certain Lower Ordovician Faunas of the Ottawa Valley, with descriptions of some new species. Mus. Bul. Ottawa 33 1921 pp. 19-57 3 pls. 7 t. ff.

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Muricella erythraea sp. n. Red Sea, KÜKENTHAL Denk. Ak. Wiss. Wien 89 p. 28 figs.; *M. erythraea*, SCHIMBKE 77; *M. gracilis* sp. n., MOLANDER Ark. Zool. 14 2 p. 11 figs.

Nephthya chabroli p. 19; *laevis* sp. n. p. 20 figs., Red Sea, KÜKENTHAL Denk. Ak. Wiss. Wien 89.

Nidaliopsis xeranthemum sp. n., LÜTTSCHWAGER Arch. Natg. 1914 A. 10 p. 35 figs.

†*Pachypora corallioides* f. n. Mid-Devonian, Carnia, p. 101 figs., VINASSA DE REGNY Palaeontogr. Italica 24 1918.

Paragorgia arborea, SCHIMBKE 77.

Paralemnalia gen. n. (*Nephthyidae*), for *Lemnalia thyrsoides* p. 15; *thyrsoides* p. 16; *flabellum* p. 17 figs; *eburnea* sp. n. p. 18 figs., KÜKENTHAL Denk. Ak. Wiss. Wien 89.

Paraplexaura spinosa, SCHIMBKE 77.

†*Plasmopora carnica* f. n. Mid-Devonian, Carnia, p. 89 figs., VINASSA DE REGNY Palaeontogr. Italica 24 1918.

†*Pleurodictyum megastomum*, CHAPMAN 14 p. 216 figs.

Plexaura flavida, SCHIMBKE 77.

Primnoa resedaeformis, SCHIMBKE 77 p. 17 fig.

Primnoella antarctica, SCHIMBKE 77 p. 1 figs.

Pseudocladochonus hicksoni Japan, HICKSON 47.

Pterogorgia pinnata, SCHIMBKE 77.

†*Romingeria ramulosa* sp. n., CHAPMAN P. R. Soc. Vict. 33 p. 221 figs.

Sarcodictyon catenata, S. Australia, HICKSON 47.

Scirpearia erythraea sp. n. Red Sea, KÜKENTHAL Denk. Ak. Wiss. Wien 89 p. 26 figs.; *S. erythraea*, SCHIMBKE 77.

Scleranthelia musiva, THOMSON 90 p. 153 fig.

Sinularia unilobata sp. n., THOMSON Tr. R. Soc. S. Afr. 9 p. 172 fig.; *S. leptoclados* p. 3; *polydactyla* p. 4; *mayi* sp. n. p. 6; *gyrosa* p. 6; *conferta* p. 7; *herdmani* p. 7; *palmata* p. 8; *querciformis* p. 8; *hirta*; *dura* p. 9; *pinnulata*; *rigida* p. 10; *densa*; *flexilis* p. 11; *macropodia*; *brassica* p. 12; *whiteleggi* sp. n. p. 13; *marenzelleri* p. 13; *fungoides*; *gardineri* p. 14; *capitalis*; *andamanensis* p. 15, LÜTTSCHWAGER Arch. Natg. 1914 A. 10.

Stenella doederleini, SCHIMBKE 77.

†*Striatopora subaequalis* Mid-Devonian, Carnia, var. *major* var. n. p. 103 fig., VINASSA DE REGNY Palaeontogr. Italica 24 1918; †*S. volaica* sp. n. p. 199; *subaequalis* p. 200, Canaries, CHARLESWORTH J. Ges. vaterl. Cult. Breslau 1914 1 (6) c.

†*Stromatopora beuthi* var. *radiata* p. 114 figs.; *cadornai* p. 115 figs.; *columnaris* var. *carnica* p. 116; *bucheliensis* var. *crassa* p. 117 figs.; *forojulensis* p. 117 figs. ff. n. Mid-Devonian, Carnia, VINASSA DE REGNY Palaeontogr. Ital. 24 1918.

†*Syringopora carnica* f. n. p. 110 figs., VINASSA DE REGNY Palaeontographia Italica 24 1918; †*S. thomii* sp. n., CHAPMAN Proc. R. Soc. Vict. 33 p. 222 figs.; †*S. alpina* sp. n. Canaries, CHARLESWORTH J. Ges. vaterl. Cult. Breslau 1914 1 (6) c. p. 204.

†*Tetradium syringoporoides*, HOLTEDAHL 48; †*T.* p. 1, *tasmaniense* sp. n. Upper Ordovician or basal Silurian, Tasmania, p. 8 plate, CHAPMAN Tasm. Dept. Mines geol. surv. Rec. 5 1919; †*T. cylindricum* sp. n. Lower Ordovician, Ottawa, p. 46 pl. iii fig. 3, WILSON Mus. Bul. Ottawa 33 1921.

Verrucella flexuosa, KÜKENTHAL 56 p. 27 figs.

Wrightella coccinea, SCHIMBKE 77 p. 63 fig.

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†*Amplexus gortanii* f. n. Mid-Devonian, Carnia, p. 86 figs., VINASSA DE REGNY Palaeontogr. Italica 24 1918; †*A. frechi* var. *major* var. n. Mid-Devonian, Carnia, VINASSA DE REGNY Palaeontogr. Ital. 24 1918 p. 85; †*A. frechi* sp. n. Lower Devonian, Canaries, CHARLESWORTH J. Ges. vaterl. Cult. Breslau 1914 1 (6) c. p. 173.

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†*Aspasmophyllum* *ligeriense*, CHARLESWORTH 12.

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†*Aulopsammia eoacnica* sp. n. Eocene, Herzegovina, p. 155 fig., OPPENHEIM Zs. D. geol. Ges. A. 72 1920.

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†*Balanophyllia calyculus* p. 17, *subcylindrica* p. 17, *fluctuosa* sp. n. p. 17 pl. 2, *watsoni* sp. n. p. 17 pl. 2, BELL Ann. Rept. Yorkshire Phil. Soc. 1920.

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†*Clysiophyllum taramealii* f. n. Mid-Devonian, Carnia, p. 85 figs., VINASSA DE REGNY Palaeontogr. Italica 24 1918.

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†*Cyathophylloides symbioticum* sp. n. Lower Devonian, Canaries, CHARLESWORTH J. Ges. vaterl. Cult. Breslau 1914 1 (6) c. p. 176.

†*Cyathophyllum helianthoides* p. 179, *vermiculare* mut. *carnicum* mut. n. p. 180, *hallioides* p. 182, *heterophyllum* p. 183, *volaicum* sp. n. p. 184, *dianthus* p. 185, *alpinum* sp. n. p. 186, *syringoporoides* sp. n. Lower Devonian, Canaries, p. 187, *macrocytis* p. 188, CHARLESWORTH J. Ges. vaterl. Cult. Breslau. 1914 1 (6) c.; †*C. tinocystis*

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†*Cyathoseris pachypetala* sp. n. Eocene, Barcelona, p. 158 figs., OFFENHEIM Zs. D. geol. Ges. A. 72 1920.

†*Cystiphyllum intermedium* var. *densum* var. n. p. 191, *vesiculosum* p. 192, *cristatum* p. 193, CHARLESWORTH J. Ges. vaterl. Cult. Breslau 1914 1 (6) c.

†*Dianulites rocklandensis*, sp. n. Lower Ordovician, Ottawa, p. 47 pl. ii figs. 1, 2, WILSON Bul. Mus. Ottawa 33 1921.

†*Dichocaenia merriami* var. *crassisepta* var. n. Lower Pliocene, California, p. 371, VAUGHAN Prof. Paprs. U.S. Geol. Surv. 98-T 1916.

†*Diplearea northeyi* p. 85 figs., *sikesi* p. 86 figs., spp. n., Kambe Limestones, B.E.A., GREGORY Rift Vall. Geol. E. Afr.

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†*Eusmilia carrizensis* sp. n. Lower Pliocene, California, p. 369, VAUGHAN Prof. Paprs. U.S. Geol. Surv. 98-T 1916.

†*Ewaldocoenia* gen. n. p. 152 *Lawelkai* sp. n. p. 153 figs. Eocene, Herzegovina, OFFENHEIM Zs. D. geol. A. 72 1920.

†*Flabellum minuta* sp. n., BELL Ann. Rept. Yorkshire Phil. Soc. 1920 p. 18 pl. 2.

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Helaria nom. n. for *Heliactis* Thompson 1858 preoccupied p. 262, STECHOW Arch. Natg. Abt. A. 87 (3).

Herpolitha limax, VAN DER HORST 49.

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Homostichanthidae, STEPHENSON 83.

†*Hydnophyllia scalaria* p. 6; *michelottii* p. 8; *d'Achiardii*; *cerebriformis* p. 9; *profunda*; *macrogyra* p. 10; *inaequalis* p. 11; *dimorpha*; *tenera* p. 12; *dubia* p. 13; *valleculosa* p. 15 fig.; *vetusta* p. 16 fig.; *collinaria* p. 20; *interrupta* p. 21; *lobata* p. 22, FELIX 26.

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†*Maeandra bowersi* sp. n. Lower Pliocene, California, p. 374 figs., VAUGHAN Prof. Paprs. U.S. Geol. Surv. 98-T 1916.

Madrepora meyni sp. n. Diluvial, Germany, p. 190, OFFENHEIM Zs. D. Ges. Geol. 69 B 1917.

Merulina ampliata p. 38; *vaughani* nom. nov. for *M. ampliata* Dana p. 39; *regalis* p. 39; *studerii* p. 40, VAN DER HORST Rés. Siboga Exp. Livr. 90.

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†*Petraia celloniensis* sp. n. Lower Devonian, Canaries, CHARLESWORTH Jahresh. Schles. Ges. Breslau 1914 1 (6) c. p. 171.

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†*Porites carrizensis* sp. n. Lower Pliocene, California, p. 375 figs., VAUGHAN Prof. Paprs. U.S. Geol. Surv. 98-T 1916.

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†*Solenastrea fairbanksi* var. *normalis* p. 373 figs.; *minor* p. 373 figs. vars. n. Lower Pliocene, California, VAUGHAN 93.

†*Steriphonotrochus leithensis* sp. n. Lance formation, N. Dakota, p. 64 figs., VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128-A 1920.

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†*Thamnarea hobleyi* sp. n. Kambe Limestones, B.E.A., GREGORY Rift Vall. Geol. E. Afr. p. 88 fig.

†*Thamnophyllum carnicum* f. n. Mid-Devonian, Carnia, p. 87 figs., VINASSA DE REGNY Palaeontogr. Italica 24 1918.

†*Thecia swinderenana* mut. *devonica* mut. n., CHARLESWORTH J. Ges. vaterl. Cult. Breslau 1914 1 (6) c. p. 203.

†*Trochocyathus dakotaensis* p. 61 figs.; *neumani* p. 62 figs., spp. n. Lance formation, N. Dakota, VAUGHAN Prof. Papers U.S. Geol. Surv. 128-A 1920.

Turbinolia (Heteractis) gerardi sp. n., Sables de Wemmél, VINCENT Ann. Soc. r. malac. 51 p. 55 figs.

†*Zaphrentis alpina* sp. n. Lower Devonian, Canaries, CHARLESWORTH J. Ges. vaterl. Cult. Breslau 1914 1 (6) c. p. 177.

†*Zaphrentis cornucopiae*; *vermicularis*, FRECH 27.

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†*Lorenzinia*, GORTANI 36 p. 58.

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Beröe ramosa sp. n. Japan, KOMAI Annot. Zool. Jap. 10 p. 17 figs.

Calya nom. n. for *Calymma* Eschscholtz preoccupied p. 262, STECHOW Arch. Natg. Abt. A. 87 (3).

Chlorella nom. n. for *Euchlora* Chun preoccupied p. 262, STECHOW Arch. Natg. Abt. A. 87 (3).

Chlorellidae nom. n. for *Euchloridae* p. 262, STECHOW Arch. Natg. A. 87.

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V. ECHINODERMA

ARRANGED BY

II. B. PRESTON.

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I.—TITLES.

- 1.—Adkins, W. S. and Winton, W. M. Paleontological correlation of the Fredericksburg and Washita Formations in North Texas. *Bull. Texas Univ. Austin Texas* No. 1945 1919 pp. 1-128 pls. i-xxi.
- 2.—Agos, E. L. Yacimientos de fósiles carboníferos de Arenas de Cabrales (Asturias). *Bol. Soc. Esp. Hist. Nat. Madrid* 21 1921 pp. 59-62.
- 3.—Aldrich, T. H. New Eocene species from Alabama. *Bul. Amer. Paleont. Ithaca N.Y.* 9 1921 pp. 5-32 pls. i-iii.
- 4.—Awerinzew, S. Einige Beiträge zur Verbreitung der Bodenfauna in Kola-Fjorde. *Intern. Rev. Hydrobiol. Leipzig* 2 1909 pp. 375-385.
- 5.—Bamber, R. C. Note on some experiments on the water vascular system of *Echinus*. *Proc. & Trans. Liverpool Biol. Soc.* 35 1921 pp. 64-70.
- 6.—Beauchamp, P. de. Recherches biogéographiques sur la zone des marées à l'île d'Yeu. *Paris C. R. Acad. Sci.* 173 1921 pp. 945-947.
- 7.—Bell, A. Notes on the later Tertiary Invertebrata. *Rep. Yorks. Phil. Soc.* 1920 1920 pp. 1-21 pls. i & ii.
- 8.—Bestel, F. Compte rendu géologique. In Mailfait, P. Excursion du 29 Juin 1904 à Baâlons et sur les Crêtes de Poix. *Bull. Soc. Hist. Nat. Ardennes* 11 1904 pp. 72-78.
- 9.—Bestel, F. Excursion du 7 mai 1906. Carrières et exploitations minières de l'Oxfordien à Viel-Saint-Remy et Neuvisy. *Bull. Soc. Hist. Nat. Ardennes* 12 1905 pp. 68-76.
- 10.—Bestel. Excursion du 22 avril 1906 de Vigne-aux-Bois à Donchery, par Bosséval et Montimont. *Bull. Soc. Hist. Nat. Ardennes* 13 1906 pp. 49-55.
- 11.—Bestel. Excursion du 16 juin 1906 aux environs des Grandes-Armoises. *Bull. Soc. Hist. Nat. Ardennes* 13 1916 pp. 57-64.
- 12.—Böhm, J. *Echinocorys franciscæ*, n. sp. und die turone Fauna van Kalkofen und Lebbin auf Wollin. *Jahrb. geol. Landes-anst. Berlin* 39 1918 pp. 148-153 1 pl.
- 13.—Bonarelli, G. Tierra del Fuego y sus turberas. *An. Min. Agric. Etc. Buenos Aires* 12 No. 3 1917 pp. 1-121.
- 14.—Bouvier, E. L. Sur un ouvrage relatif à la faune française. *Paris C. R. Acad. Sci.* 172 1921 pp. 826-827.
- 15.—Brun, P. de and Vedel, L. Étude géologique des environs de St-Amboix. Liste paléontologique de l'Hettangien (Suite). *Bull. Soc. Sci. Nat. Nîmes* 41 1920 pp. 73-113.
- 16.—Bush, M. Revised key to the Echinoderms of Friday Harbor. *Publ. Puget Sound Biol. St. Seattle* 3 1921 pp. 65-77 pl. ix.
- 17.—Chambers, R. and Mossop, B. A report on cross fertilization experiments. (*Asterias* x *Solaster*). *Proc. Trans. R. Soc. Can. Ottawa* 4 1919 pp. 145-147.
- 18.—Checchia-Rispoli, G. "*Trachyspatagus Lamberti*" nuovo echinide del Miocene Sardo. *Boll. Soc. Geol. Ital. Roma* 39 1921 pp. 171-176 pl. vii.
- 19.—Clark, A. H. Sea-Lilies and Feather-Stars. *Smithsonian Misc. Collect. Washington* 72 1921 pp. 1-43 pls. i-xvi.
- 20.—Clark, A. H. A new Ophiuran of the genus *Ophiosila* from Southern California. *Proc. Biol. Soc. Washington* 34 1921 pp. 109-110.
- 21.—Clark, A. H. Echinoderms. Report of the Canadian Arctic Expedition 1913-1918. Vol. VIII. Mollusks, Echinoderms, Coelenterates, etc. Part C: Echinoderms. *Ottawa* 1920 pp. 1c-13c.

- 22.—Clark, A. H. The echinoderms as aberrant arthropods. Smithsonian Misc. Collect. Washington 72 1921 pp. 1-20.
- 23.—Clark, H. L. The echinoderm fauna of Torres Strait: its composition and its origin. Dept. Mar. Biol. Carnegie Inst. Washington 10 1921 pp. 1-224 pls. i-xxxviii.
- 24.—Clark, A. H. A new Starfish (*Lydiaster americanus*) from the Gulf of Mexico, representing a section of the Subfamily Goniasterinae hitherto known only from the Indo-Pacific Region. J. Acad. Sci. Washington 6 1916 pp. 141-144.
- 25.—Clark, A. H. Seven new Genera of Echinoderms. J. Washington Acad. Sci. 6 1916 pp. 115-122.
- 26.—Clark, A. H. *Ophiomaria*, a new Genus of Ophurians from southern South America and the adjacent portion of the Antarctic Continent. J. Washington Acad. Sci. 6 1916 pp. 384-387.
- 27.—Clark, A. H. Six New Genera of Unstalked Crinoids belonging to the Families *Thalassometridae* and *Chariotmetridae*. J. Washington Acad. Sci. 6 1916 pp. 605-608.
- 28.—Clark, A. H. A Revision of the Crinoid Family Antedonidae, with the diagnoses of Nine New Genera. J. Washington Acad. Sci. 7 1917 pp. 127-131.
- 29.—Clark, A. H. A revision of the recent genera of the crinoid family *Bourgueticrinidae* with the description of a new genus. J. Washington Acad. Sci. 7 1917 pp. 388-392.
- 30.—Clark, A. H. The interrelationships of the subfamilies and genera included in the crinoid family *Antedonidae*. J. Washington Acad. Sci. 7 1917 pp. 504-512.
- 31.—Clark, A. H. The systematic position of the Crinoid genus *Holopus*. J. Washington Acad. Sci. 9 1919 pp. 136-138.
- 32.—Clark, H. L. Echinoderms in birds' stomachs. Science New York N.Y. 51 pp. 594-595.
(N-17041 m) q
- 33.—Clark, T. H. A new *Agelacrinitid* from the Chazy of New York. Amer. J. Sci. New Haven Conn. 50 1920 pp. 69-71.
- 34.—Clark, F. W. and Wheeler, W. C. The inorganic constituents of marine invertebrates. Prof. Paprs. U.S. geol. Surv. Washington 102 1917 pp. 1-56.
- 35.—Clarke, J. M. Early parasitism of the snails upon the crinoids. New York State Mus. Bul. Albany 221-222 1919 (1921) pp. 64-78.
- 36.—Clarke, J. M. Symbiotic conjunction of crinoids and starfishes. New York State Mus. Bul. Albany 221-222 1919 (1921) pp. 78-80.
- 37.—Collin, L. Étude de la Région Dévonienne occidentale du Finistère. Thèse Fac. Sci. Univ. Paris 3 pp. 1-474 pls. i-ii [Ech. at pp. 427 & 428].
- 37a.—Collip, J. B. The alkali reserve of marine fish and invertebrates. The excretion of carbon dioxide. J. Biol. Chem. New York 44 1920 pp. 329-344.
- 38.—Couffon, O. Deuxième note sur le calcaire de Grip. Bull. Soc. Étude Sci. Angers N.S. 50 1920 (1921) pp. 19-27.
- Crawford, W. *vide* Harris, W. J.
- 39.—Crossland, C. Dangers of pearl diving. Sudan Notes Rec. Khartoum 2 1919 pp. 234-236.
- 40.—Currie, E. D. Fossils from Western Persia. Geol. Mag. London 58 1921 pp. 529-537.
- 41.—Darton, N. H. A comparison of Palaeozoic sections in Southern New Mexico. U.S. Geol. Surv. Washington Prof. paper 108-c 1917 pp. 29-55.
- 42.—Das-Gupta, H. C. A short note on the cretaceous echinoid *Cyrtoma*, Mc'Lelland. J. Asiat. Soc. Beng. Calcutta 16 1921 pp. 297-300.
- 43.—Decary, R. Observations sur des Échinodermes de Madagascar. Bull. Mus. Hist. Nat. Paris 1921 1921 pp. 243-244.
- 44.—Démoly, F. Nouvelles observations sur les échinides de la Savoie. Bull. Soc. Hist. Nat. Savoie Ser. ii 16 1911-12 (1913) pp. 178-208 pl. xvi.
a 6-2

- 45.—Depéret, C. et Solignac, M. Sur le Sahélien de la Tunisie septentrionale. Paris C. R. Acad. Sci. 172 1921 pp. 1557-1561.
- 45a.—Dubar, G. Présence d'un niveau de schistes à échinides, dans l'Infraalias de Saint-Sirac (Ariège). Compte-Rendu Soc. Géol. France Paris 1920 1920 pp. 116-17.
- 46.—Fabiani, R. Sul Terziario dell' Alta Val di Non (Trentino). Atti Acc. Sci. Padova 10 1917-19 1919 pp. 117-123.
- 47.—Fabiani, R. Studio geologico della regione di S. Severino Marche. Atti Acc. ven.-trent. Padova 11 1920 (1921) pp. 26-42.
- 48.—Fabiani, R. Guida Geologica delle Colline di Verona. Atti Acad. Agric. Verona 21 1919 pp. 3-14 5 pls.
- Fillon, R. *vide* Hinard, G.
- 48a.—Fischer, J. J. Eine Pliocän-fauna von Seran (Molukken). Centralbl. Min. Stuttgart 1921 1921 pp. 242-251 & 278-286.
- 49.—Foerste, A. F. The Kimmswick and Plattin Limestones of the North-eastern Missouri. Bull. Sci. Lab. Denison Univ. Granville Ohio 19 1920 pp. 175-224 pls. xxi-xxiii.
- 50.—Foerste, A. F. The identification of Trenton and lower geological horizons. Bul. Geol. Surv. Kentucky Frankfort Ky. Ser. iv. 1 1913 pp. 365-376.
- 51.—Fossa-Mancini, E. Un singolare echinoide mesozoico dell' Appennino centrale. (*Anachothuria* n. gen.). Atti Soc. Tosc. Sci. Nat. (Mem.) Pisa 33 1921 pp. 3-18.
- 52.—Fossa-Mancini, E. Un po' di storia dei generi *Scagliaster* e *Lampadaster*. (A proposito di una recensione di J. Lambert). Riv. ital. paleont. Parma 26 1920 pp. 73-79.
- 52a.—Fossa-Mancini, E. Catalogo dei fossili dell' Appennino centrale conservati nel museo di geologia dell' Università di Pisa. Parte I. Palaeontogr. Italica Pisa 24 1918 pp. 129-145 1 pl.
- 53.—Fourtau, R. Catalogue des invertébrés fossiles de l'Égypte représentés dans les collections du Musée de Géologie au Caire. Terrains Crétacés.—3me Partie: Échinodermes (Supplément). Egypt. Geol. Surv. Pal. Ser. No. 5 1921 pp. 1-101 pls. i-xi.
- 54.—Foyles, E. J. The geology about Mills Springs, Monticello Quadrangle, Kentucky. Amer. Mus. Novit. New York 11 1921 pp. 1-10.
- 55.—Franke, F. Die Fauna des Emschers bei Dortmund. Zs. D. Geol. Ges. Berlin B 66 1914 pp. 214-227.
- 56.—Galigher, A. E. Axial metabolic gradients in the early development of the Sand Dollar, *Dendraster excentricus*. Publ. Puget Sound Biol. St. Seattle 3 1921 pp. 105-115 pl. xvii.
- 57.—Gardiner, C. I. The Silurian rocks of May Hill. With an appendix on two Trilobites by Dr. F. R. Cowper Reed, M.A., D.Sc. Proc. Cotteswold Cl. 20 1921 pp. 185-222.
- 57a.—Gemmellaro, M. Sopra un crinoide (*Pseudosaccocoma strambergensis* Remes) del Titonico inferiore e dell' Ugoniano della provincia di Palermo. Riv. Ital. paleont. Parma 25 1919 pp. 45-49 1 pl.
- 58.—Girty, G. H. A chapter on invertebrate paleontology. In Hinds, H. and Greene, F. C. The stratigraphy of the Pennsylvanian series in Missouri. Miss. Bur. Geol. Mines Jefferson City 13 1915 pp. 263-375 pls. xxvii-xxxii.
- 59.—Gortani, M. Osservazioni sulle impronte medusoidi del Flysch (Lorenzina e Atollites). Riv. ital. paleont. Perugia 26 1921 pp. 56-72 pl. ii.
- 60.—Grabau, A. W. Significance of the Sherburne Sandstone in upper devonic stratigraphy. Bul. Geol. Soc. Amer. New York 30 1919 pp. 423-470.
- 61.—Gray, J. Note on true and apparent hermaphroditism in sea-urchins. Proc. Cambridge Phil. Soc. 20 1921 p. 481.
- 62.—Gregory, J. W. The Rift Valleys and geology of East Africa, etc. London Seeley, Service & Co. 1921 pp. 1-480 [Ech. at p. 298].

- 63.—Harris, G. D. A reprint of the more inaccessible palaeontological writings of Robert John Lechmere Guppy. Bul. Amer. Paleont. Ithaca N.Y. 3 1921 pp. 1-198 [Ech. at p. 103].
- 64.—Harris, W. J. and Crawford, W. The relationships of the sedimentary rocks of the Gisborne District, Victoria. Proc. R. Soc. Vict. Melbourne 33 1921 pp. 39-78.
- 64a.—Hauf, B. Untersuchung der Fossilfundstätten von Holzmaden im Posidonienschiefer des Oberen Lias Württembergs. Echinodermen. Palaeontographica Stuttgart 64 1921 p. 17.
- 65.—Hawkins, H. L. Note on a collection of Echinoids from the limestone-lenticles in the sand-pits of Shenley Hill. Geol. Mag. London 58 1921 pp. 57-60.
- 66.—Hawkins, H. L. Morphological studies on the Echinoidea. Holcypoida and their allies. XI. *Conulopyrina anomala* a new type of the *Echinonoidae*. Geol. Mag. London 58 1921 pp. 420-426 pl. vii.
- 67.—Hede, J. E. Om några nya fynd av graptoliter inom Gottlands Silur och deras Betydelse för Stratigrafien. Sveriges Geol. Unders. Årsbok 1918 (1919) Ser. C. No. 291 Årsbok 12 1918 No. 8 pp. 3-31.
- 68.—Hennig, E. Die Fauna der deutsch-ostafrikanischen Urgonfazies. Zs. D. geol. Ges. Berlin Abhandl. 68 1916 pp. 441-476 [Echinodermata at p. 468].
- 69.—Hinard, G. and Fillon, R. Sur la composition chimique des astéries. Paris C. R. Acad. Sci. 173 1921 pp. 935-937.
- 69a.—Holtedahl, O. Notes on the ordovician fossils from Bear Island collected during the Swedish expeditions of 1898 and 1899. Norsk Geol. Tidsskr. Christiania 5 1918 pp. 79-94 3 pls.
- 70.—Hones, C. W. The Stanley Shale of Oklahoma. Amer. J. Sci. New Haven Conn. Ser. 5 1 1921 pp. 63-80.
- 71.—Hume, G. S. The stratigraphy and geologic relations of the Paleozoic Outlier of Lake Timiskaming. Amer. J. Sci. New Haven Conn. 50 1920 pp. 293-309.
- 72.—Hume, W. F. (and others). The Jurassic and Lower Cretaceous rocks of Northern Sinai. Geol. Mag. London 58 1921 pp. 339-347
- Kirk, E. vide Ulrich, E. O.
- 73.—Köhler, R. Echinodermata Asteroidea. Australian Antarctic Expedition 1911-14. Scientific Reports Series C. Zoology and Botany 8 1920 pt. 1 pp. 1-308 pls. i-lxxv.
- 74.—Köhler, R. Sur les services que la radiographie peut rendre dans l'étude des Clypeastridés. C. R. Acad. Sci. Paris 173 1921 pp. 1130-1132.
- 75.—Köhler, R. Échinodermes (Astéries, Ophiures, Échinides et Crinoides) des dernières campagnes de la Princesse-Alice et de l'Hirondelle II. Bull. Inst. Océan. Monaco 396 1921 pp. 1-8.
- 76.—Lambert, J. Note sur quelques échinides de l'Infra-lias du Gard et en particulier de Gammal. Bull. Soc. Sci. Nat. Nîmes 41 1914-1918 (1920) pp. 114-120.
- 77.—Lambert, J. Notes paléontologiques II. Note sur quelques Échinides du Crétacé inférieur de la Provence. Notes Provençales 11 1920 pp. 1-23 pls ii & iii.
- 78.—Lambert, J. Description des Échinides du Bassin du Rhone. Notes Provençales 11 1920 pp. 23-24.
- 79.—Lambert, J. Échinides fossiles des environs de Santander recueillis par M. L. Mengaud. . . . Ann. soc. linn. Lyon 66 1920 pp. 1-56 pls. i-iii.
- 79a.—Lambert, J. Rectifications de nomenclature. Rev. crit. paleozool. Paris 24 p. 174.
- 80.—Lambert, J. Sur quelques genres nouveaux d'Échinides. Mem. Soc. Acad. Aube Troyes 83 & 84 1920 pp. 145-174 pls. i & ii.
- 80a.—Lambert, J. Sur un échinide nouveau du Montien des environs de Paris. Bull. soc. géol. Paris 20 1920 pp. 246-250 1 pl.
- 80b.—Lecointre, G. Une faune helvétique à Taza (Maroc). Comptes-Rendu soc. géol. France Paris 1920 1920 pp. 102-103.
- 81.—Legge, J. A. Pearl fishing. Rept. Cheltenham Coll. Nat. Hist. Soc. 1920 (1921) pp. 27-29.

- 82.—Lemoine, E. Le massif jurassique de Curienne La Thuile. Contribution à l'étude des chaînes subalpines de la Savoie. Bull. Soc. Hist. Nat. Savoie Ser. ii 17 1913-15 1916 pp. 59-138.
- 83.—Lemoine, J. Abstract 314 of Roig, Esqualidos des Mioceno y Plioceno de la Habana. Rev. Geol. Liège 2 1921 p. 121.
- 84.—Leuthardt, F. Ueber Fossilien aus dem Hauenstein-Bassistentunnel. Act. Soc. helvét. Sci. Nat. 101 1920 (1921) p. 203.
- 84a.—Leuthardt, F. Die Fossilien der Humphriesi-Schichten aus dem Hauenstein - Bassistentunnel. Echinodermen. Eclogae Geol. Helvet. Lausanne 16 1920 p. 132.
- 85.—Lieberkind, I. On a starfish (*Asterias groenlandica*) which hatches its young in its stomach. Vidensk. Medd. nat. For. Kjöbenhavn 72 1920 pp. 121-126.
- 86.—MacBride, E. W. Echinoderm larvæ and their bearing on classification. Nature London 108 1921 pp. 529-530.
- MacBride, E. W. vide Ohshima, H.
- 87.—Maillieux, E. Découverte d'une faune siegenienne dans les environs de Pepinster. Bul. soc. geol. paléont. hydr. Bruxelles 29 1920 pp. 90-91.
- 88.—Maluquer, J. Les secciones ictiológica i d'invertebrats marins en 1918. Junta de Ci. Nat. Barcelona 3 1918 pp. 192-198.
- 89.—Mangold, —. Tierische Hypnose bei Echinodermen. Biol. Centralbl. Leipzig 41 1921 pp. 456-8.
- 90.—Mauve, C. C. Geologische Untersuchungen im Molésongebiet. Eclogae Geol. Helvet. Lausanne 16 1921 pp. 374-455.
- 91.—McCourt, W. E. The geology of Jackson County. Miss. Bur. Geol. Mines Ser. ii 14 1917 pp. 1-158 pls. i-xix (*Crinoidea* pl. xv).
- 92.—Moore, R. C. The Bend Series of Central Texas. Bul. Amer. Ass. Petrol. Geol. 3 1919 pp. 217-241.
- 92a.—Mortensen, T. The Danish Ingolf-Expedition.. Vol. IV, 2, Echinoidea, part ii. Copenhagen 1907 200 pp. 19 pls.
- 93.—Mortensen, T. Studies in the Development of Crinoids. Papers Dept. Marine Biol. Carnegie Inst. Washington 16 1920 pp. 1-94 pls. i-xxviii.
- 94.—Mortensen, T. Notes on some Scandinavian Echinoderms with descriptions of two new Ophiurids. Vidensk. Med. nat. For. Kjöbenhavn 72 1920 pp. 45-79.
- Mossop, B. vide Chambers, R.
- 95.—Moutier, F. Glanures paléontologiques. Bull. Soc. Linn. Normand. Caen Ser. 7 2 1920 pp. 49-50.
- 95a.—Myers, R. G. A chemical study of the blood of several invertebrate animals. J. Biol. Chem. New York 41 1920 pp. 119-135.
- 96.—Newton, R. B. On a marine Jurassic fauna from Central Arabia. Ann. Mag. Nat. Hist. London 7 1921 pp. 389-403 pl. xi.
- 97.—Ohshima, H. with appended note by MacBride, E. W. Reversal of asymmetry in the plutei of *Echinus miliaris*. Proc. Roy. Soc. London Ser. B 92 pp. 168-178.
- 98.—Ohshima, H. On the Development of *Cucumaria echinata* v. Marenzeller. Q. J. Microsc. Sci. London 65 1921 pp. 173-246 pls. viii-ix.
- 99.—Ohshima, H. Notes on the larval skeleton of *Spatangus purpureus*. Q. J. Exp. Physiol. London 65 1921 pp. 479-492 pl. xxi.
- 100.—Oppenheim, P. Über *Brissopneustes danicus* Schlüter im Diluvium von Berlin. Zs. D. geol. Ges. Berlin (Monatsb.) 73 1921 pp. 156-159.
- 101.—Oppenheim, P. Gehören die *Clypeaster* führenden Schichten des Kilikischen Taurus wirklich der Kreide an? Zs. D. geol. Ges. Berlin Abhandl. 68 1916 pp. 426-440.
- 102.—Ord, W. T. Geology. Nat. Hist. of Bournemouth and District. Bournemouth Natural Science Soc. 1914 pp. 305-356.

- 103.—Popescu-Voitesti, I. Contribution a l'étude de la faune du calcaire nummulitique d'Albesti (Muscel). An. Inst. Geol. Romaniei Bucharest 4 1910 pp. 121-137 pls. i-iv.
- 104.—Popescu-Voitesti, I. Contributiuni la studiul faunei calcarului numulitic de Albesti (Muscel). An. Inst. Geol. Romaniei Bucharest 4 1910 pp. 138-155 pls. i-iv.
- 105.—Rabowski, F. Sur l'âge des couches à *Mytilus*. Bul. Soc. Sci. Nat. Lausanne 52 1919 pp. 77-82.
- 106.—Raymond, P. E. A contribution to the description of the fauna of the Trenton Group. Mus. Ottawa (Geol. Ser. 38) 31 1921 pp. 1-64 pls. i-xi.
- 107.—Reeside, J. B. The Helderburg limestone of Central Pennsylvania. Prof. paprs. U.S. Geol. Surv. Washington 108-k 1917 pp. 185-225.
- 108.—Reynolds, S. H. On the rocks of the Avon Section, Clifton. Geol. Mag. London 58 1921 pp. 543-548.
- 108a.—Rodighiero, A. Il sistema Cretaceo del Veneto occidentale compreso fra l'Adige e il Piave, con speciale riguardo al Neocomiano de Sette Comuni. Palaeontogr. Italica Pisa 25 1919 pp. 39-125 6 pls.
- 109.—Runnström, J. Entwicklungsmechanische Studien an *Henricia sanguinolenta* Forbes und *Solaster* sp. Arch. EntwMech. Leipzig 46 1920 pp. 459-484.
- 110.—Runnström, J. and Runnström, S. Über die Entwicklung von *Cucumaria frondosa* Gunnerus und *Psolus phantapus* Strussenfelt. Eine embryologische entwicklungs-mechanische und biologische Studie. Bergens Mus. Aarbok 1918-19 1921 Hefte 2 No. 5 pp. 1-99 pls. i-viii.
- Runnström, S. vide Runnström, J.
- 111.—S., B. *Echinus esculentus*, Linn. Rep. Dove Marine Lab. Cullercoats 10 1921 p. 111.
- 112.—Saint-Périer, de. Conservation des échinodermes et des crustacés. Bull. Soc. Sci. Seine-et-Oise Ser. ii 1 1920 pp. 75-76.
- 113.—Savornin, J. Le Moyen Atlas marocain. C. R. Acad. Sci. Paris 173 1921 pp. 322-324.
- 114.—Schöndorf, F. Der geologische Bau der Gehrdenen Berge bei Hannover. Jahresber. nathist. Ges. Hannover 62-68 1919 pp. 70-91.
- 115.—Schöndorf, F. Die Schichtfolge des Oberen Jura am Samkeweg bei Springe. Jahresber. Niedersach. geol. Ver. Hannover 7 1914 pp. 107-115.
- 116.—Schöndorf, F. Die Weiss-Jura-Aufschlüsse von Völksen am Deister. Jahresber. Niedersach. geol. Ver. Hannover 7 1914 pp. 125-144.
- 117.—Sheppard, T. *Pseudodiadema variolare* (Brongniart) in the Lower Chalk of North Lincolnshire. Naturalist London 772 1921 p. 181.
- Solignac, M. vide Depéret, C.
- 118.—Spengler, E. Untersuchungen über die tektonische Stellung der Gosauschichten. ii Teil: Das Becken von Gosau. Sitzber. Ak. Wiss. Wien. Abt. i 123 1914 pp. 267-328.
- 119.—Springer, F. New species of Devonian Crinoidea from northern Canada. Mus. Bul. Ottawa 33 1921 pp. 15-18 pl. i.
- 120.—Springer, F. The fossil crinoid genus *Dolatocrinus* and its allies. Bull. U.S. Nat. Mus. 115 1921 pp. 1-59 pls. i-xvi.
- 121.—Stainier, X. Les calcaires a crinoïdes du houiller belge. Bul. soc. geol. paléont. hydr. Bruxelles 29 1919 1920 pp. 70-76.
- 121a.—Stechow, E. Neue Genera und Species von Hydrozoen und anderen Evertabraten. Arch. Natg. Berlin Abt. A 87 (3) 1921 pp. 248-265.
- 121b.—Stefanini, G. (Memoria del socio.) Echinidi cretacei e terziari d'Egitto raccolti da Antonio Figari Bey (Parte prima). Boll. soc. Geol. Ital. Rome 37 1918 (1919) pp. 121-168 1 pl.
- 121c.—Stefanini, G. (Memoria del socio.) Echinidi cretacei e terziari d'Egitto raccolti da Antonio Figari Bey. (Parte seconda) II. Specie eoceniche. Boll. Soc. Geol. Ital. Rome 38 1919 pp. 39-63 1 pl.

121d.—Stefanini, G. Fossili del Neogene Veneto. Parte seconda. Brachiopoda—Echinodermata. Palaeontogr. Italica Pisa 25 1919 pp. 127-171 2 pls.

122.—Swinnerton, H. H. The use of graphs in palaeontology. Geol. Mag. London 58 1921 pp. 357-364 397-408.

123.—Thomas, A. O. A *Herpetocrinus* from the Silurian of Iowa. Proc. Iowa Acad. Sci. Des Moines 26 1919 pp. 481-483.

124.—Thomas, A. O. The Independence Shale near Brandon, Iowa. Proc. Iowa Acad. Sci. Des Moines 26 1919 pp. 485-491.

125.—Trauth, F. Das Eozänvorkommen bei Radstadt im Pongau und seine Beziehungen zu den gleichalterigen Ablagerungen bei Kirchberg am Wechsel und Wimpassing am Leithagebirge. Denkschr. Ak. Wiss. Wien 95 1918 pp. 171-278 pls. i-v.

126.—Ulrich, E. O. and Kirk, E. *Amecystis* a new genus of Ordovician Cystidea. Proc. Biol. Soc. Washington 34 1921 pp. 147-148.

127.—Vaughan, T. W. The Reef-Coral fauna of Carrizo Creek, Imperial County, California and its significance. Prof. Papers. U.S. geol. Surv. 98-t 1916 pp. 355-395 pls. xiv-cii.

Vedel, L. *vide* Brun, P. de.

128.—Vilaseca, S. Contribució la estudi dels terrenys triàsics de la Província de Tarragona. Pub. Junta Ci. Nat. Barcelona 8 1920 pp. 1-66.

129.—Waddington, H. J. Marine Fauna. Invertebrata. Nat. Hist. of Bournemouth and District. Bournemouth Natural Science Soc. 1914 pp. 213-230 [*Echinoderma* at p. 218].

130.—Weller, S. The geology of Hardin County. Part vi. Paleontology. Bull. Geol. Surv. Illinois Urbana 41 1920 pp. 313-377 pls. iv-xi.

131.—Weller, S. The Chester series in Illinois. J. Geol. Chicago Ill. 28 1920 pp. 281-303.

Wheeler, W. C. *vide* Clark, F. W.

132.—Wichmann, R. Contribución a la geología de la región comprendida entre el Río Negro y Arroyo Valcheta. An. Min. Agric. etc. Buenos Aires 13 No. 4 1919 pp. 9-45 pls. i-vii.

132a.—Wilhelmi, H. Ein Beitrag zur Theorie der Organischen Symmetrie. Arch. EntwMech. Leipzig 46 1920 pp. 210-258 26 figs.

133.—Winton, W. M. and Adkins, W. S. The geology of Tarrant County. Bull. Texas Univ. Austin Texas No. 1931 1919 pp. 1-123 pls. i-vi.

Winton, W. M. *vide* Adkins, W. S.

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†*Ananchothuria* gen. n. with *A. tessellata* sp. n. Mesozoic [? Lower Cretaceous or Upper Jurassic] Italy, FOSSA-MANCINI Atti Soc. Tosc. Sci. Nat. (Mem.) Pisa 33 pp. 3–18.

- †*Anaulocidaris*, VILASECA 128.
- †*Anorthopygus* with *A. excisus* [? sp. n.] Turonian Spain, LAMBERT Ann. soc. linn. Lyon 66 pp. 10-11 pl. i fig. 18.—A., FOURTAU 53.
- †*Antillaster*, LAMBERT 80.
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- Arachnoididae*, CLARK 23.
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- †*Archicea*, FOURTAU 53.
- †*Arnaudaster* with *A. gauthieri* [? gen. n. & sp. n.] Cenomanian France, LAMBERT Mem. Soc. Acad. Aube 83 & 84 pp. 152-153 167 pl. i figs. 1-4.
- †*Asterobrissus fourtani*, DÉMOLY 44.—A., FOURTAU 53.
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- †*Cardiaster*, DÉMOLY 44.—C., LAMBERT 79.—C., HAWKINS 65.
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- †*Clitopygus*, DÉMOLY 44.
- †*Clypeaster marinelli*, sp. n. Tertiary, Venice, STEFANINI Palaeontogr. Italica 25 p. 134 pl. xiv fig. 3.—C. *anglicus* sp. n. Tertiary, England, BELL Rep. Yorks. Phil. Soc. 1920 p. 13 pl. ii figs. 3 6.—C., HARRIS 63.—C. *guebhardi*, LAMBERT 78.—C., OPPENHEIM 101.
- †*Clypeolampas* with *C. douvillei*, *mengaudi* [? spp. n.] Campanian, Spain, LAMBERT Ann. soc. linn. Lyon 66 pp. 18-21 pls. ii figs. 1 3; i figs. 19 21.
- †*Codechinus*, DÉMOLY 44.
- †*Codiopsis*, FOURTAU 53.—C. LAMBERT 79.
- †*Conulopyrina* gen. n. *anomala* sp. n. ? Cenomanian, England, HAWKINS Geol. Mag. London 58 p. 422 pl. vii.
- †*Conoclypeus*, LAMBERT 79.—C., POPESCU-VOITESTI 103 & 104.
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- †*Coptodiscus mengaudi* [? sp. n.] Cenomanian, Spain, LAMBERT Ann. soc. linn. Lyon 66 pp. 12-13 pl. ii figs. 4 7.—C., CURRIE 40.
- †*Corthya* with *C. guebhardi* [? sp. n.] Lower Cretaceous, France, LAMBERT Notes Provençales 11 pp. 6-9 pl. ii figs. 7A-D.
- †*Cossmannaster*, LAMBERT 80.
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- Cystocrepis* gen. n. type *Echinocrepis setigera*, MORTENSEN 92a p. 84.
- †*Dallonia* with *D. squamosa* sp. n. Laoghien, Algeria, LAMBERT Mem. Soc. Ac. Aube 83 & 84 pp. 146-148 pl. i figs. 5-6.

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†*Diademopsis*, DE BRUN & VEDEL
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†*Diplopodia*, FOURTAU 53.—D.,
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†*Disaster*, LAMBERT 77.

†*Discholectypus guehardi* [? sp. n.]
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†*Dorocidaris*, BELL 7.—D., FOURTAU
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†*Douvillaster*, LAMBERT 80.

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†*Echinocorys franciscæ* sp. n. Upper
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†*Echinometra*, HARRIS 63.

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†*Epiaster* with *E. crassus* [? sp. n.]
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†*Eupatagus figarii* sp. n. Eocene,
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†*Hemiaster* with *H. maucus* Ceno-
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†*Hemidiadema* with *H. guebbardi* [? sp. n.] Lower Cretaceous, France, LAMBERT Notes Provençales 11 pp. 3 17 pl. ii fig. 3.

†*Hemipneustes*, CURRIE 40.—*H.*, LAMBERT 79.

†*Heteractechinus mengaudi* [? sp. n.] Campanian, Spain, LAMBERT Ann. soc. linn. Lyon 66 pp. 9-10 pl. i figs. 14 17.

†*Heterodiadema*, FOURTAU 53.—*H.*, WINTON & ADKINS 133.

†*Hikelaster*, LAMBERT 80.

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†*Holactypus*, ADKINS & WINTON 1.—*H.*, CURRIE 40.—*H.*, DÉMOLY 44.—*H.*, FOURTAU 53.—*H.*, LAMBERT 77 & 79.

†*Homoianthoides*, LAMBERT 80.

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†*Leiostomaster* [? gen. n.] Type *L. gentili*, Lambert, LAMBERT Mem. Soc. Acad. Aube 83 & 84 pp. 162-164 169 pl. i figs. 15-19.

†*Leptarbaria*, WINTON & ADKINS 133.

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†*Macropneustes*, HARRIS 63.

†*Magnosia*, FOURTAU 53.

†*Mauritanaster* [? gen. n.] Type *M. gentili* Lambert, LAMBERT Mem. Soc. Acad. Aube 83 & 84 pp. 164 168 pl. ii figs. 12 13.

†*Meoma roigi* sp. n. for *Hemipatagus hoffmani* Goldf., LEMOINE Rev. Geol. 2 1920 1921 p. 121.

†*Micraster* with *M. sphaerula*, *proclivis*, *coribericum*, *douvillei*, *santanderensis*, *cantaber* [? spp. n.] Santonien, Spain, LAMBERT Ann. soc. linn. Lyon 67 pp. 1-13 pls. iii figs. 3 5 8 9 10 11.

†*Micropedina*, FOURTAU 53.

†*Miocidaris*, DE BRUN & VEDEL 15.—*M.*, LAMBERT 76.

†*Miotoxaster* with *M. obtusus*, *sey-nensis* [? spp. n.] Cretaceous, France, LAMBERT Notes Provençales 11 pp. 11-12 pl. iii figs. 2 4.—*M.*, FOURTAU 53.

†*Mixotaster fourtaui*, sp. n. Cretaceous, Arabia, Egypt, STEFANINI Boll. Soc. geol. Ital. 37 p. 144 pl. v figs. 9a-d 10a b.

†*Niponaster*, LAMBERT 80.

†*Nucleolites*, HAWKINS 65.

†*Nudobrissus*, LAMBERT 80.

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†*Ovulechinus* type fixed *O. pilula* sp. n. Santonien, France, LAMBERT Mem. Soc. Ac. Aube 83 & 84 pp. 148-149 pl. i figs. 7-9.

†*Palæopedina*, DE BRUN & VEDEL 15.—*P.*, LAMBERT 76.

†*Palhemiaster* gen. n. Type *P. peroni* Lambert, LAMBERT Mem. Soc. Acad. Aube 83 & 84 pp. 159-162 163 pl. ii figs. 1-5.

†*Parapygus*, CURRIE 40.

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†*Pedina*, DÉMOLY 44.

†*Pedinopsis*, FOURTAU 53.

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†*Petalobrissus*, LAMBERT 80.

- †*Pharaonaster*, LAMBERT 80.
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 †*Phymosoma*, LAMBERT with *P. pseudotiara* [? sp. n.] Santonien, Spain, LAMBERT Ann. soc. linn. Lyon 66 pp. 7-9 pl. i figs. 1 4.—*P.*, DÉMOLY 44.—*P.*, LAMBERT 77.
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 †*Polydialema* with *P. lionii* [? sp. n.] Lower Cretaceous, France, LAMBERT Notes Provençales 11 pp. 2 17 pl. ii fig. 2.—*P.* with *P. cantabrum* [? sp. n.] Urgo-aptien, Spain, LAMBERT Ann. soc. linn. Lyon 66 pp. 5-6 pl. i figs. 10 13.
 †*Polydesmater* [*Polydesmaster*] [? gen. n.] Type *P. fourtaui* Lambert, LAMBERT Mem. Soc. Acad. Aube 83 & 84 pp. 164-166 169 pl. ii figs. 7-11.
 †*Porobrisus*, LAMBERT 80.
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 †*Prenaster*, HARRIS 63.
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 †*Pseudonucleus* with type *P. malladai* [? gen. & sp. n.] Campanien, Spain, LAMBERT Ann. soc. linn. Lyon 66 pp. 17-18 pl. ii figs. 8 12.—*P.* with *P. malladai* [? gen. & sp. n.] Campanien, LAMBERT Mem. Soc. Acad. Aube 83 & 84 pp. 153 167.
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 †*Psilosoma*, FOURTAU 53.
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 †*Pygaulus*, DÉMOLY 44.
 †*Pygopistes*, FOURTAU 53.
 †*Pygopyrina*, LAMBERT 77.
 †*Pygorhynchus*, DÉMOLY 44.
 †*Pygurostoma*, CURRIE 40.
 †*Pygurus*, DÉMOLY 44.—*P.*, FOURTAU 53.—*P.*, NEWTON 96.
 †*Pyrina*, CURRIE 40.—*P.*, FOURTAU 53.—*P.*, HAWKINS 65.—*P.*, LAMBERT 79.
 †*Rachiosoma broccchii*, sp. n. Cretaceous, Egypt, STEFANINI Boll. Soc. Geol. Ital. 37 p. 131 pl. v figs. 15a d 16a-f.—*R.*, FOURTAU 53.—*R.*, LAMBERT 77.
 †*Rhabdocidaris*, CURRIE 40.—*R.*, DÉMOLY 44.—*R.*, FOURTAU 53.—*R.*, LAMBERT 77.—*R.*, NEWTON 96.
 †*Rodocystis*, LAMBERT 80.
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 †*Scagliaster*, FOSSA-MANCINI 52.
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†*Scutella forumpiliensis*, sp. n. Tertiary, Venice, STEFANINI Palaeontogr. Italica 25 p. 136 pl. xiv (viii) fig. 1.—*S. guebhardi*, LAMBERT 78.

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†*Sinæcidaris*, FOURTAU 53.

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†*Spatangus*, BELL 7.

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†*Sphaerechinus*, BELL 7.

†*Stenocorys*, LAMBERT 80.—*S. nom. nov.* [sic = Lambert 1917] pro *Stenonia* Desor non Gray, LAMBERT Rev. crit. pelez. 24 p. 174.

Stephomma nom. n. for *Stephanopsis* Lambert preoccupied p. 263, STECHOW Arch. Natg. Abt. A 87 (3) 1921.

†*Stereocidaris*, FOURTAU 53.—*S.*, LAMBERT 79.

Stomopneustidae, CLARK 23.

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†*Strongylocentrotus*, BELL 7.

†*Temnechinus*, BELL 7.

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†*Thomasaster* gen. n. (Type *T. arai-daensis* Gauthier (*Archiacia*)), LAMBERT Mem. Soc. Acad. Aube 83 & 84 pp. 155 167.

†*Tiaridia*, FOURTAU 53.

†*Toxaster*, LAMBERT 77.

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†*Trachyspatagus lamberti* sp. n. Miocene, CECCHIA-RISPOLI Boll. Soc. Geol. Ital. 39 pp. 171-176.

†*Trematopygus*, DÉMOLY 44.—*T.*, FOURTAU 53.

Tretocidaris annulata syn. of *T. bartletti*, MORTENSEN 92a p. 169.

Tripylaster subg. n. ad *Schizaster*, type *S. philippii*, MORTENSEN 92a p. 122.

†*Trochodiadema*, FOURTAU 53.

†*Trochotiara* with *T. guebhardi* [? sp. n.] Lower Cretaceous France, LAMBERT Notes Provençales 11 p. 2 pl. ii fig. 1.—*T.*, DÉMOLY 44.

†*Tylocidaris* with *T. mengaudi* [? sp. n.] Campanien Spain, LAMBERT Ann. soc. linn. Lyon 66 pp. 2-4 pl. i figs. 5 9.

†*Typocidaris*, FOURTAU 53.—*T.*, LAMBERT 77 & 79.

Urechinus naresianus p. 39, *U. giganteus* p. 45, MORTENSEN 92a.

†*Vasconaster*, nom. nov. [sic = Lambert 1915] pro *Surcella* [sic = *Sarsella*] Pomel non Haecckel, LAMBERT Rev. crit. paléozoöl 24 p. 174.

†*Victoriaster*, LAMBERT 80.

†*Vologesia*, CURRIE 40.—*V.*, LAMBERT 80.

†*Vomeraster*, LAMBERT 80.

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Anasterias with *A. victoriae*, *adeliae* spp. n. Antarctic, KÖHLER Aust. Ant. Exp. 1911-14 Sci. Rep. Zool. Bot. 8 pp. 11-30 pls. i figs. 1 2 & 5-10; ii fig. 5; iii figs. 1-6; iv figs. 1-4; v figs. 1-10; vi figs. 1-4; lvi fig. 1; lvii fig. 1.

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†*Asterias*, BELL 7.

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Austrofromia gen. n., CLARK Dept. Mar. Biol. Carnegie Inst. 10 p. 48.

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†*Comptonia*, ADKINS & WINTON 1.—C., FOURTAU 53.

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Cryaster with *C. aurorae* sp. n. Antarctic, KÖHLER Aust. Ant. Exp. 1911-14 Sci. Rep. Zool. Bot. 8 pp. 120-132 pls. xxvii figs. 1-3 5 6; xxviii figs. 1-11; xxix figs. 2-6; xxx figs. 2-5.

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Ferdina with *F. ocellata* sp. n. Torres Straits, CLARK Dept. Mar. Biol. Carnegie Inst. 10 p. 60 pls. vi fig. 5; xxxi figs. 1 & 2.

Fromia with *F. pacifica* Pacific; *elegans* Torres Straits; *hadracantha* Philippines spp. n., CLARK Dept. Mar. Biol. Carnegie Inst. 10 pp. 42 & 45 pls. vii fig. 3; xxix figs. 5 & 6; xxxi figs. 5 & 6

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Glabraster gen. n. Type *Porania magellanica* Stud., CLARK J. Wash. Acad. Sci. 6 p. 121.

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Hacelia with *H. superba* sp. n. off Bartados, CLARK Dept. Mar. Biol. Carnegie Inst. 10 p. 87 pl. xxxii.

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Hymenaster coriaceus, pudicus spp. n. Antarctic, KÖHLER Aust. Ant. Exp. 1911-14 Sci. Rep. Zool. Bot. 8 pp. 173-177 pls. xxxix figs. 1-2; xxxvi figs. 8-10.—H., KÖHLER 75.

Kampylaster gen. n. with *K. granulatus* sp. n. Antarctic, KÖHLER Aust. Ant. Exp. 1911-14 Sci. Rep. Zool. Bot. 8 pp. 136-139 pl. xxxvi figs. 4-7 11; xxxvii figs. 1-3; lxvi fig. 8.

Leiaster with *L. brevispinus* sp. n. Pacific, CLARK Dept. Mar. Biol. Carnegie Inst. 10 p. 74 pl. xxx.

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Mariaster gen. n. Type *Johannaster giganteus* Goto, CLARK J. Wash. Acad. Sci. 6 p. 116.

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†*Metopaster hortensae* sp. n. Lower Cretaceous, Texas, ADKINS & WINTON Bull. Texas Univ. 1945 p. 46 pl. x figs. 2-4.

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†*Pentagonaster texensis* sp. n. Lower Cretaceous Texas, ADKINS & WINTON Bull. Texas Univ. 1945 p. 47 pl. x figs. 5-6.

Pergamaster gen. n. with *P. tessellatus* sp. n. Antarctic, KÖHLER Aust. Ant. Exp. 1911-14 Sci. Rep. Zool. Bot. 8 pp. 237-242 pl. xlix figs. 2 3 & 5-17.

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†*Amecystis* gen. n., ULRICH & KIRK Proc. Biol. Soc. Washington 34 pp. 147-148.
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†*Melocrinus borealis*, *M. canadensis* spp. n. Devonian Upper Canada, SPRINGER Mus. Bul. Ottawa 33 1921 pl. i figs. 1–3.—*M. occidentalis* Oehlert, COLLIN 37.

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†*Phyetocrinus*, CLARKE 35.

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†*Pterotocrinus* with *P. serratus*, *menardensis* spp. n. Lower Carbon U.S.A., WELLER Bull. geol. Surv. Ill. Urbana 41 pp. 342 360 372–373 pls. v figs. 24–26; xi fig. 9.—*P.*, CLARKE 35.

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†*Strotocrinus*, CLARKE 35.

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†*Technocrinus niagarensis* sp. n.
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†*Pentremiles* with *P. platybasis*, oka-
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VI. VERMES

ARRANGED BY

H. M. WOODCOCK.

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- 2.—Allen, E. J. Regeneration and reproduction of the Syllid *Procerastea*. Phil. Trans. Roy. Soc. London B 211 1921 pp. 131–177 pls. xi–xvi.
- 3.—André, E. Sur la *Protoleipsis tessellata*. Rev. Suisse Zool. Genève 28 1921 pp. 443–448.
- Annandale, N. vide Kemp, S.
- 4.—Ashworth, J. H. Chironomid parasite and its effects. Naturalist London No. 768 1921 pp. 15 & 16.
- 5.—Bahl, K. L. On the blood-vascular system of the earthworm *Pheretima* and the course of the circulation in earthworms. Quart. Journ. Micr. Sci. London 65 1921 pp. 349–393.
- Ball, S. C. vide Coe, W. R.
- 6.—Barlow, C. H. Experimental ingestion of the ova of *Fasciolopsis buski*; also the ingestion of adult *Fasciolopsis buski* for the purpose of artificial infestation. J. Parasitol. Urbana 8 1921 pp. 40–44.
- 7.—Baumann, F. Endoparasitische Saugwürmer (*Azygia tereticollis* [Rud.] und Bandwurmlarven (Plerocercoiden von Bothriocephalen) aus der Seeforelle, *Salmo lacustris* (L.) Mitth. Natf. Gesellsch. Bern. 1920 1921 pp. 98–111.
- 8.—Baylis, H. A. A new genus of Nematodes parasitic in elephants. Parasitol. Cambridge 13 1921 pp. 57–66.
- Baylis, H. A. vide Crawley, W. C.
- 9.—Becker, R. Die äussere Gestalt der Pferdebandwürmer. Centralbl. Bakt. Jena Abth. 1 87 Orig. 1921 pp. 110–118.
- 10.—Becker, R. Weitere Beiträge zur Anatomie der Pferdebandwürmer. Centralbl. Bakt. Jena Abth. 1 87 Orig. 1921 pp. 216–227.
- 11.—Beddard, F. E. On a new species of the Oligochaete genus *Thamnodrilus* (Beddard) with notes on *Th. guillemi* (Beddard) Ann. Mag. Nat. Hist. Ser. 9 7 1921 pp. 153–161.
- 12.—Bell, A. Notes on the later Tertiary Invertebrata. Ann. Rep. Yorkshire phil. Soc. 1920 (1921) pp. 1–21 2 pls.
- 13.—Benham, W. B. Polychaeta. Austral. Antarctic Exped. 1911–1914. Sci. Reps. Ser. C (Zool. and Bot.) 6 pt. 3 1921 pp. 1–128 pls. v–x.
- 14.—Bettencourt, A., Borges, I. et Seabra, A. de. L'hôte intermédiaire du *Schistosomum haematobium* au Portugal. C. R. Soc. biol. Paris 85 1921 pp. 1169 & 1170.
- 15.—Blanc, G. et Caminopetros, J. Le Cysticercoïde d'*Hemidactylus turcicus* Linn. Bull. soc. path. exot. Paris 14 1921 pp. 20 & 21.
- 16.—Blei, R. Drei neue Schafzes-toden. Nebst Beiträgen zur Kenntniss der übrigen Wiederkäuerzestoden. Centralbl. Bakt. Jena Abth. 1 87 Orig. 1921 pp. 365–387.
- 17.—Börner, L. Die Bodenfauna des St. Moritzer-Sees. Eine monographische Studie. Arch. Hydrobiol. Stuttgart 13 1921 pp. 1–91 209–281 pls. i & ii.
- 18.—Bordas, M. La profase de réduction en la ovogénese de *Dendrocoelum lacteum* Oerst. Trabaja. Mus. nac. Sci. nat. Madrid. Ser. Zool. 44 1921 pp. 1–101 13 pls.
- Borges, I. vide Bettencourt, A.
- 19.—Boulenger, C. L. On some Nematode parasites of the camel in India. Parasitol. Cambridge 13 1921 pp. 311–314.
- 20.—Boulenger, C. L. Strongylid parasites of horses in the Punjab. Parasitol. Cambridge 13 1921 pp. 315–326.

- 21.—Breinl, A. Preliminary note on the development of the larvae of *Dirofilaria immitis* in dog-fleas *Ctenocephalus felis* and *canis*. Ann. trop. Med. Parasitol. Liverpool **14** 1920 pp. 389-392.
- 22.—Brumpt, E. Recherches sur le déterminisme des sexes et de l'évolution des anguillules parasites (*Strongyloides*) C. R. soc. biol. Paris **85** 1921 pp. 149-152.
- 23.—Brumpt, E. Mode de pénétration des Nématodes dans l'organisme des Mammifères, histotropisme et histodiagnostic. C. R. Soc. biol. Paris **85** 1921 pp. 203-206.
- 24.—Busch, W. Zwei neue planktonische Rotatoria-Eier. Arch. Hydrobiol. Stuttgart **13** 1921 pp. 295-298.
- 25.—Bychowsky, A. Ueber die Entwicklung der Nephridien von *Clepsine sexoculata* Bergmann (*complanata* Savigny). Rev. Suisse Zool. Genève **29** 1921 pp. 41-131 pls. i-v.
- 26.—Callerio, M. P. Rotiferi delle acque pavesi. Atti Soc. Ital. sci. nat. Milano **59** 1921 pp. 198-211.
- Caminopetros, J. vide Blanc, G.
- 27.—Cawston, F. G. Three Schistosomes in Natal which possibly attack man. J. trop. Med. London **24** 1921 pp. 242-244.
- 28.—Cawston, F. G. Some South African *Cercariae*. South African Journal Nat. Hist. Pretoria **3** 1921 pp. 199-204.
- 29.—Cawston, F. G. Experimental infestation of fresh-water snails. Trans. Roy. Soc. S. Afric. Cape Town **9** 1921 pp. 301-303.
- 30.—Chandler, A. C. Notes on the occurrence of *Moniliformis* sp. in rats in Texas. J. Parasitol. Urbana **7** 1921 pp. 179-183.
- 31.—Charrier, H. Recherches sur la *Nereis fucata* Sav. Actes Soc. Linn. Bordeaux **72** 1920 (1921) pp. 5-144 pls. i & ii.
- 32.—Chase, Eleanor. A new Avian Trematode. Proc. Linn. Soc. N.S.W. Sydney **45** 1920 (1921) pp. 500-504 pl. xxvi.
- 33.—Child, C. M. Studies on the dynamics of morphogenesis and inheritance in experimental reproduction. XI. Physiological factors in the development of the planarian head. J. exp. Zool. Philadelphia **33** 1921 pp. 409-433.
- 34.—Ciurea, J. Sur un nouvel Echinostome de l'intestin du porc. C. R. soc. biol. Paris **84** 1921 pp. 1010-1013.
- 35.—Ciurea, J. Sur la source d'infestation par l'Eustrongyle géant (*Eustrongylus gigas* Rud.) C. R. soc. biol. Paris **85** 1921 pp. 532-534.
- 36.—Cobb, N. A. The orders and classes of Nemas. Contributions to a science of Nematology, No. VIII. Nematology Waverley Press Baltimore 1919 (No. vol. given) (reprint) pp. 213-216.
- 37.—Cobb, N. A. One hundred new Nemas (type-species of 100 new genera). Contributions to a science of Nematology, IX. Nematology Waverley Press Baltimore 1920 (No. vol. given) pp. 217-343.
- 38.—Coe, W. R. and Ball, S. C. The pelagic Nemertean *Nectonemertes*. J. Morphol. Philadelphia **34** 1920 pp. 457-485 5 pls.
- 39.—Cole, A. F. Five cases of *Fasciolopsis*-infection, with remarks (with discussion). Trans. R. Soc. trop. Med. London **14** 1921 pp. 93-98.
- 40.—Connal, A. Observations on *Filaria* in *Chrysops* from West Africa (with discussion). Trans. R. Soc. trop. Med. London **14** 1921 pp. 108 & 109.
- 41.—Connal, A. and Connal, S. L. A preliminary note on the development of *Loa loa* (Guyot) in *Chrysops silacea* (Austen). Trans. R. Soc. trop. Med. London **15** 1921 pp. 131-134.
- 42.—Cooper, A. R. Trematoda and Cestoda. Rep. Canad. Arctic. Exped. 1913-1918 9 Part G-H Ottawa 1921 27 pp. 2 pls.
- 43.—Cort, W. W. Sex in the Trematode family *Schistosomidae*. Science New York N.S. **53** 1921 pp. 226-228.
- 44.—Cort, W. W. and Yokogawa, S. A new human Trematode from Japan. J. Parasitol. Urbana **8** 1921 pp. 66-69 pl. viii.

- Cram, E. B. *vide* Ransom, H. B.
- 45.—Crawley, W. C. and Baylis, H. A. *Mermis* parasitic on ants of the genus *Lasius*. Journ. Royal Microsc. Soc. London 1921 pp. 353-372.
- 46.—Daubney, R. The life-histories of *Dictyocaulus filaria* (Rud.) and *D. viviparus* (Bloch.). J. Comp. Path. Ther. Edinburgh 33 1920 pp. 225-266 12 figs.
- 47.—Dawson, A. B. The inter-muscular nerve cells of the earth-worm. J. Comp. Neur. Philadelphia 32 1920 pp. 155-171 7 figs.
- 48.—Dekhuysen, C. Sur la semi-perméabilité biologique des parois extérieures des Sipunculides. C. R. Acad. sci. Paris 172 1921 pp. 238-241.
- 49.—Dekhuysen, C. Les parois de certains animaux marins halisotoniques sont biologiquement semiperméables. Arch. Néerlandaises La Haye ser. IIIe 5 1921 pp. 563-571.
- 50.—Delachaux, T. Un Polychète d'eau douce cavernicole, *Troglochaetus beranecki* nov. gen. nov. spec. (note prélim.). Bull. soc. sci. nat. Neuchâtel 45 1919-1920 (1921) pp. 3-11 pl. i.
- 51.—Delphy, J. Recherches sur les Oligochètes limicoles. III. Sur quelques genres d'Enchytrémiformes et la position systématique de l'*Enchytraeoides* Roule. Bull. Mus. Paris 1919 pp. 626-632.
- 52.—Dendy, A. An addition to the British fauna (*Rhynchodemus scharffi*). Nature London 107 1921 pp. 298 & 299.
- Descazeaux, J. *vide* Pérard, C., also Roubaud, E.
- 53.—Dickey, L. B. A new Amphibian Cestode. J. Parasitol. Urbana 7 1921 pp. 129-136 pl. xiii.
- 54.—Fauré-Fremiet, E. La maturation et l'activation expérimentale de l'oeuf chez les *Sabellaria*. C. R. soc. biol. Paris 85 1921 pp. 810 & 811.
- 55.—Fauré-Fremiet, E. Discontinuité dans l'évolution morphologique du chondriome de l'oeuf de *Sabellaria alveolata* L. C. R. soc. biol. Paris 85 1921 pp. 986-989.
- 56.—Faust, E. C. The excretory system in *Digenea* (Trematoda). IV. A study of the structure and development of the excretory system in a cystocercous larva, *Cercaria pekinensis* nov. spec. Parasitol. Cambridge 13 1921 pp. 205-212.
- 57.—Faust, E. C. Notes on South African larval Trematodes. J. Parasitol. Urbana 8 1921 pp. 11-21 pl. iii.
- 58.—Faust, E. C. Phases in the life-history of a Holostome, *Cyathocotyle orientalis* nov. spec., with notes on the excretory system of the larva. J. Parasitol. Urbana 8 1921 pp. 78-85 pls. ix & x.
- 59.—Faust, E. C. Larval flukes from Georgia. Trans. Amer. Microsc. Soc. Menasha Wis. 40 1921 pp. 49-58 pls. ii & iii.
- 60.—Fauvel, Pierre. Annélides Polychètes de Madagascar, du Muséum R. d'Histoire Naturelle recueillies par M. le Dr. W. Kaudern en 1912. Ark. Zool. Stockholm 13 No. 24 1921 pp. 1-32 1 pl. 2 text-figs.
- 61.—Fischer, W. *Aspidosiphon pygmaeus* n. sp., eine neue Gephyree aus Juan Fernandez.—The natural history of Juan Fernandez and Easter Island ed. by C. Skottsberg 3 P. 1 Uppsala 1921 pp. 45-47 1 text-fig.
- 62.—Fischer, W. Results of Dr. E. Mjöberg's Swedish scientific expeditions to Australia 1910-13. XXVII. Gephyreen. K. Svenska Vet.-Ak. Handl. Stockholm 61 No. 8 1921(1-8) 6 text-figs.
- 63.—Foley, H. Microfilaires du chien dans le sud-oranais (*Mf. immitis*; *Mf. auquieri*, nov. sp.). Ann. Inst. Pasteur Paris 35 1921 pp. 212-217 pl. iii.
- 64.—Friend, H. Two new aquatic Annelids. Ann. Mag. Nat. Hist. London Ser. 9 7 1921 pp. 137-141.
- 65.—Friend, H. Why do worms die? Nature London 107 1921 p. 172.
- 66.—Fülleborn, F. Über Askaridenlarven im Gehirn. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 62 & 63.
- 67.—Fülleborn, F. Nachweis von Ankylostomen und *Strongyloides* durch Platten-kotkultur. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 121-123.

- 68.—Fülleborn, F. Ueber die Wandern von *Ascaris*-und anderen Nematoden-larven im Körper und intrauterine *Ascaris*-infektion. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 146–149.
- 69.—Fülleborn, F. Ueber den Nachweis der *Schistosomum mansoni*-Eier im Stuhl. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 334–340.
- 70.—Fülleborn, F. *Ascaris*-infektion durch Verzehren eingekapselter Larven und über gelungene intrauterine *Ascaris*-infektion. Arch. Schiffs. Tropenhyg. Leipzig 25 1921 pp. 367–375.
- 71.—Galli-Valerio, B. Parasitologische Untersuchungen und Beiträge zur parasitologischen Technik. Centralbl. Bakt. Jena Abth. 1 86 Orig. 1921 pp. 346–352.
- 72.—Gendre, E. Sur deux espèces de Nématodes africains Proc.-verb. soc. linn. Bordeaux 73 1921 pp. 28–36.
- 73.—Gendre, E. Notes d'Helminthologie africaine (cinquième note). Proc.-verb. soc. linn. Bordeaux 73 1921 pp. 49–55.
- 74.—Goetsch, W. Regeneration und Transplantation bei Planarien. I. Teil. Arch. EntwMech. Leipzig 49 1921 pp. 359–382 17 figs.
- 75.—Goette, A. Einiges aus der Entwicklungsgeschichte der Cestoden. Zool. Jahrb. Jena Abth. Anat. 42 1921 pp. 213–228 pl. xi.
- 76.—Goldman, A. *Hymenolepis nana*; possible *Cercocystis*-stage. Amer. J. trop. Med. Baltimore 1 1921 pp. 109–118; and J. trop. Med. London 24 1921 pp. 219–221.
- 77.—Gravier, C. Sur les Annélides Polychètes du genre *Iphitime* Marenzeller, famille des Eunicien. Bull. Mus. Paris 1921 pp. 358–360.
- 78.—Gross, A. O. The feeding habits and chemical sense of *Nereis virens* Sars. J. Exp. Zool. Philadelphia 32 1921 pp. 427–442.
- 79.—Hall, M. C. Two new genera of Nematodes, with a note on a neglected Nematode structure. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 541–546.
- 80.—Hall, A. R. Regeneration in the annelid nerve cord. J. Comp. Neur. Philadelphia 33 1921 pp. 163–191 17 figs.
- 81.—Harrah, E. C. Two new Monostomes from Asia. J. Parasitol. Urbana 7 1921 pp. 162–165.
- 82.—Harris, G. T. Why do worms die? Nature London 107 1921 p. 269.
- 83.—Hartmann, O. Ueber eine neue Brunnenplanarie. (*Polycladodes subterranea* n. sp.) Zool. Jahrb. Jena Abth. Syst. 44 1921 pp. 337–354 pl. xviii.
- 84.—Haswell, W. A. The proboscis of the *Syllidea*. Part I. Structure. Quart. Journ. Micr. Sci. London 65 1921 pp. 323–337 pl. xv.
- 85.—Herpin, R. Sur l'origine et le rôle des cellules à réserves de la cavité générale chez *Perinereis cultrifera* (Gr.) et *Perinereis marioni* (Aud. et Edw.) et sur la différenciation précoce de leurs oeufs. C. R. Acad. Sci. Paris 173 1921 pp. 249–252.
- 86.—Hieronymi, E. und Szidat, L. Ueber eine neue Hühnerenzootie, bedingt durch *Prosthogonimus intercalandus* n. spec. Centralbl. Bakt. Jena Abth. 1 86 Orig. 1921 pp. 236–241.
- 87.—Hofsten, N. von. Anatomie, Histologie und systematische Stellung von *Otoplana intermedia* du Plessis. Zoolog. Bidrag Uppsala 7 1921 pp. 1–74 pls. i & ii.
- 88.—Holthusen, H. Beiträge zur Biologie der Strahlenwirkung. Untersuchungen an Askarideneiern. Arch. ges. Physiol. Berlin 187 1921 pp. 1–24 3 figs.
- 89.—Horst, R. A review of the family of *Hesionidae* with a description of two new species. Zool. Mededeel. Leiden 6 1921 pp. 73–83.
- 90.—Horst, R. *Haplobranchus aestuarinus* Bourne, een sedentaire Annelide uit het brakke water van Nederland. Zool. Mededeel. Leiden 6 1921 p. 216.
- 91.—Hyman, L. H. and Galigher, A. E. Direct demonstration of the existence of a metabolic gradient in Annelids. J. Exp. Zool. Philadelphia 34 1921 pp. 1–16.

- 92.—Ihle, J. E. On the genus *Cylicostomum*. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 397-402.
- 93.—Ihle, J. E. Eine neue *Cylicostomum*-Art (*C. mucronatum*) aus dem Darm des Pferdes. Centralbl. Bakt. Jena Abth. 1 84 Orig. 1920 pp. 132-134.
- 94.—Ihle, J. E. Bemerkungen über die Gattungen *Cylicostomum*, *Poteriostomum* und *Craterostomum*. Centralbl. Bakt. Jena Abth. 1 85 Orig. 1920 pp. 267-275.
- 95.—Ihle, J. E. Das Männchen von *Cylicostomum ultrajectinum*. Centralbl. Bakt. Jena Abth. 1 85 Orig. 1921 pp. 372-374.
- 96.—Ihle, J. E. and Oordt, G. J. van. On the larval development of *Oxyuris equi* (Schränk). Proc. K. Akad. Wet. Amsterdam 23 No. 4 1921 pp. 603-612.
- 97.—Iroso, Isabella. Revisione dei Serpulidi e Sabellidi del Golfo di Napoli. Pubbl. Staz. Zool. Napoli Milano 3 1921 pp. 47-91 tav. iii & iv.
- 98.—Irwin-Smith, Vera. Nematode parasites of the domestic pigeon (*Columba livia domestica*) in Australia. Proc. Linn. Soc. N.S.W. Sydney 45 1920 (1921) pp. 552-563.
- 99.—Irwin-Smith, Vera. Notes on Nematodes of the genus *Physaloptera*, with special reference to those parasitic in Reptiles. Proc. Linn. Soc. N.S.W. Sydney 46 1921 pp. 492-502.
- 100.—Jackson, H. G. A revision of the genus *Fasciola*, with particular reference to *F. gigantica* (Cobbold) and *F. nyanzi* (Leiper). Parasitol. Cambridge 13 1921 pp. 48-56 pl. iii.
- 101.—Janda, V. Nové zprávy o regeneraci pohlavních orgánů Oligochaetů. Mem. Soc. Roy. Sci. Bohême Prague 1918 No. 1 pp. 1-40 (with German resumé) 1 pl.
- 102.—Johnston, T. H. and Taylor, B. Notes on Australian Chaetognatha. Proc. Roy. Soc. Queensland Brisbane 31 1920 pp. 28-41.
- 103.—Johnston, T. H. and Taylor, B. The Chaetognatha. Anstral. Antarctic Exped. 1911-1914. Sci. Reps. Ser. C. (Zool. and Bot.) 6 2 1921 pp. 1-16 pls. ii-iv.
- 104.—Joyeux, C. Cycle évolutif de quelques Cestodes. Recherches expérimentales. Bull. biol. France Belg. suppl. 2 1920 pp. 1-219 pls. i-vii.
- 105.—Joyeux, C. Développement direct d'un *Hymenolepis* (Ténia) dans les villosités intestinales du hérisson. Bull. soc. path. exot. Paris 14 1921 pp. 386-390.
- 106.—Joyeux, C. Description d'un Cysticercoïde de *Cerastes cornutus*. Arch. Inst. Pasteur Afrique du Nord Algiers et Tunis 1 1921 pp. 383-387 2 figs.
- 107.—Kaburaki, T. Note on the leech, *Limnatis nilotica*. Rec. Ind. Mus. Calcutta 18 1921 pp. 215 & 216.
- 108.—Kaburaki, T. Notes on some leeches in the collection of the Indian Museum. Rec. Ind. Mus. Calcutta 22 1921 pp. 689-719.
- 109.—Kaburaki, T. On some leeches from the Chilka Lake. Mem. Ind. Mus. Calcutta 5 1921 pp. 661-675.
- 110.—Kemp, S. Notes on larval Trematodes from Seistan. Rec. Ind. Mus. Calcutta 18 1921 pp. 229-232 (with Addendum by Annandale, N. p. 232).
- 111.—Kepner, W. A. and Helvestine, F. Pharynx of *Microstoma caudatum*. J. Morphol. Philadelphia 33 1920 pp. 309-323 3 pls.
- 112.—Kimura, O. A case of cysts in the brain caused by *Paragonimus westermani*. Arch. Path. Inst. Univ. Sendai 1 1921 pp. 375-384 6 figs.
- 113.—Kofend, I. Wissenschaftliche Ergebnisse der mit Unterstützung der kaiserlichen Akademie der Wissenschaften in Wien aus der Erbschaft Treitl von F. Werner unternommenen zoologischen Expedition nach dem angloägyptischen Sudan (Kordofan) 1914. Cestoden aus Säugethieren und aus *Agama colonorum*. Anz. Akad. Wiss. Wien 54 1917 pp. 229-231.
- 114.—Kotlán, A. Two new *Cylicostomum*-species from the horse. Ann. trop. Med. Parasitol. Liverpool 14 1921 pp. 299-307.

- 115.—Kraatz, W. C. A preliminary general survey of the macrofauna of Mirror Lake on the Ohio State University Campus. Ohio Journ. Sci. Columbus 21 1921 pp. 137-182 pls. i & ii.
- 116.—Krekel, A. Die Leuchtorgane von *Chaetopterus variopedatus* Clap. Zs. wiss. Zool. Leipzig 118 1920 pp. 480-509 pls. ix-xi.
- 117.—Labbé, A. Sur des fécondations hétérogènes. C. R. Acad. sci. Paris 173 1921 pp. 942-945.
- 118.—Lankester, E. R. Earthworms drowned in puddles. Nature London 107 1921 pp. 329 & 330.
- 119.—Lankester, E. R. Earthworms, mud-worms and water-worms. Nature London 107 1921 p. 424.
- 120.—Lane, C. Some bursate Nematodes from Indian and African elephants. Ind. J. Med. Res. Calcutta 9 1921 pp. 163-172 pls. xi-xvi.
- 121.—Leger, M. Présence dans les matières fécales, à la Guyane, d'œufs de Nématodes indéterminés. Bull. soc. path. exot. Paris 14 1921 pp. 155-159.
- 122.—Leger, M. A propos de *Necator americanus* Stiles, 1902. Bull. soc. path. exot. Paris 14 1921 pp. 159-161.
- 123.—Leger, M. Microfilaire sanguine du boeuf à la Guyane française. C. R. soc. Biol. Paris 84 1921 pp. 419 & 420.
- 124.—Leger, M. Anguillulose intestinale des singes à la Guyane française. C. R. soc. biol. Paris 84 1921 pp. 555-558.
- 125.—Lewis-Abbott, W. J. Why do worms die? Nature London 107 1921 pp. 490 & 491.
- 126.—Lindner, E. Die Bedeutung des *Cysticercus*-Schwanzes. Biol. Centralbl. Leipzig 41 1921 pp. 36-41.
- 127.—Linton, E. *Rhynchobothrium ingens* spec. nov., a parasite of the dusky shark (*Carcharhinus obscurus*). J. Parasitol. Urbana 8 1921 pp. 22-32 pls. iv & v.
- 128.—Lipps, W. Experimentelle Untersuchungen über den Fortflanzungswechsel bei *Stylaria lacustris*. Biol. Centralbl. Leipzig 40 1920 pp. 289-316.
- 129.—Lopez-Neyra, C. R. Notas helmintológicas (3a serie). Bol. Soc. Espan. hist. nat. Madrid 20 1920 pp. 75-90.
- 130.—Lopez-Neyra, C. R. and Medina, J. M. *Dipylidium quinquecoronatum* nov. sp., parasito intestinal del gato domestico. Bol. soc. espan. hist. nat. Madrid 21 1921 pp. 421-426 pl. xxvi.
- 131.—Lund, E. J. Oxygen-concentration as a limiting factor in the respiratory metabolism of *Planaria agilis*. Biol. Bull. Wood's Hole 41 1921 pp. 203-220.
- 132.—Lutz, A. Zur Kenntniss des Entwicklungszyklus der Holostomiden (Vorl. Mitth.). Centralbl. Bakt. Jena Abth. 1 86 Orig. 1921 pp. 124-129.
- 133.—Lutz, A. Observações sobre o genero *Urogenimus* e uma nova forma de *Leucochloridium* em novo hospedador. Mem. Inst. Oswaldo Cruz Rio de Janeiro 13 1921 pp. 136-140 (translations pp. 83-87) pls. lvii & lviii.
- 134.—MacArthur, J. W. Gradients of vital staining and susceptibility in *Planaria* and other forms. Amer. J. Physiol. Baltimore 57 1921 pp. 350-386 10 figs.
- 135.—MacCallum, J. A. Studies in Helminthology. Zoopathologica New York 1 1921 pp. 137-284.
- 136.—Magath, T. B. *Leucochloridium* in America. Science New York N.S. 53 1921 pp. 42 & 43.
- 137.—Man, J. G. de. Nouvelles recherches sur les Nématodes libres terricoles. Capita Zool. 's Gravenhage 1 1921 pp. 1-62 pls. i-xiv.
- 138.—Maplestone, P. A. Notes on Australian Cestodes. Parts I and II. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 403-412.
- Maplestone, P. A. vide Southwell, T.
- 139.—Matthai, J. Preliminary observations on cocoon-formation by the common Lahore leech, *Limnatis (Poecilobdella) granulosa* (Sav.) J. Proc. Asiatic Soc. Bengal Calcutta 16 1920 (1921) pp. 341-346 pl. xvii.

Medina, M. vide Lopez-Neyra, C. R.

140.—Meggitt, F. J. On two new tapeworms from the ostrich, with a key to the species of *Davainea*. Parasitol. Cambridge 13 1921 pp. 1-24 pl. i.

141.—Meggitt, F. J. On a new Cestode from the pouched rat, *Cricetomys gambianum*. Parasitol. Cambridge 13 1921 pp. 193-204 pl. ix.

142.—Meixner, J. *Rhynchodemus penaekei* n. sp., eine Landtriclade aus Stiermark. Zool. Jahrb. Jena Abth. Syst. 44 1921 pp. 355-374 pl. xix.

143.—Meves, F. Ueber Samenbildung und Befruchtung bei *Oxyuris ambigua*. Arch. mikr. Anat. Bonn. 94 (Festschr. O. Hertwig) 1920 pp. 135-184 pls. ix-xiii.

144.—Meyer, F. Untersuchungen über den Bau und die Entwicklung des Blutgefäßsystems bei *Tubifex tubifex* (Müll.) Jenaische Zs. 54 1916 pp. 203-244 pls. xiii-xvii.

145.—Meyer, F. Polycladen von Koseir (Rotes Meer) (Kollektion Professor Klunzinger). Arch. Natg. Berlin Abt. A 87 H. 10 1921 pp. 138-158 8 text-figs 3 pls.

146.—Michaelsen, W. Zur Stammgeschichte und Systematik der Oligochaeten, insbesondere der Lumbriculiden. Arch. Naturgesch. Berlin 86 Abth. A H. 8 1920 (1921) pp. 130-141.

147.—Michaelsen, W. Neue und wenig bekannte Oligochaeten aus skandinavischen Sammlungen. Ark. Zool. Stockholm 13 No. 19 1921 pp. 1-25 1 pl.

148.—Michaelsen, W. Oligochaeten von Juan Fernandez und der Oster Insel.—The natural history of Juan Fernandez and Easter Island ed. by C. Skottsberg 3 P. 1 Uppsala 1921 pp. 31-32.

149.—Michel, A. Tissu fibrillaire et tissu nerveux des élytres et cirres dorsaux des Annélides-Aphroditien. C. R. Acad. sci. Paris 173 1921 pp. 1122 & 1123.

150.—Michel, A. Interprétation de la profonde différenciation histologique des élytres et cirres dorsaux des Annélides-Aphroditien. C. R. Ac. sci. Paris 173 1921 pp. 1413-1415.

151.—Micoletzky, H. Die freilebenden Erd-Nematoden, mit besonderer Berücksichtigung der Steiermark und der Bukowina, zugleich mit einer Revision sämtlicher nicht mariner, freilebender Nematoden in form von Genus-Beschreibungen und Bestimmungsschlüsseln. Arch. Natg. Berlin Abt. A. 87 H. 8, 9 1921 pp. 1-649 many figs.

152.—Milton, F. Suggestions for further research in schistosomiasis. J. trop. Med. London 24 1921 pp. 13-17 27-31.

153.—M'Intosh, W. C. Notes from the Gatty Marine Laboratory, St. Andrews.—No. XLIII. Ann. Mag. Nat. Hist. London Ser. 9 8 1921 pp. 290-309.

154.—Mönnig, H. O. *Filaria nycticebi*, Eine neue *Filaria* aus dem *Nycticebus*. Centralbl. Bakt. Jena Abth 1 85 Orig. 1920 pp. 216-221 2 pls.

155.—Moore, J. P. Hirudinea. Rep. Canad. Arctic Exped. 1913-1918 Ottawa 1921 9 Part C 4 pp.

156.—Morin, G. H. Sur un procédé technique de recherche des œufs de *Schistosomum mansoni*. Bull. soc. path. exot. Paris 14 1921 pp. 328-331.

157.—Narayana Rao, C. R. On the anatomy of some new species of *Drawida*. Ann. Mag. Nat. Hist. London ser. 9 8 1921 pp. 496-536 pls. xv-xviii.

158.—Neveu-Lemaire, —. *Crosso-phorus collaris* Hemprich et Ehrenberg, Ascaride parasite des Damans. Bull. soc. path. exot. Paris 14 1921 pp. 390-396.

159.—Noc, F. Filaires sanguicoles du héron goliath du Sénégal. C. R. soc. biol. Paris 84 1921 pp. 69-71.

160.—Norman, J. R. *Rhabdopleura*. Brit. Antarctic ("Terra Nova") Exped. 1910 Nat. Hist. Rep. Zool. 4 1921 pp. 95-102.

161.—Nutting, C. C. Barbados-Antigua Expedition. Univ. Iowa Studies 8 No. 3 1919 pp. 1-274 49 pls.

162.—Nybelin, O. Zur Anatomie und systematischen Stellung von "*Tetrabothrium*" *norwegicum* Olsson. Göteborgs K. Vet. Handl. 20 No. 3 1918 25 pp. 2 pls.

163.—Onji, Y. Das Lungen-*Distoma*, der Schmarotzer wilder, Krabbenfangender und -verzehrender Thiere. Centralbl. Bakt. Jena Abth. 1 86 Orig. 1921 pp. 500-505.

Oordt, G. J. van *vide* Ihle, J. E.

164.—Pérard, C. et Descazeaux, J. Sur le parasite de la péribronchite nodulaire du cheval. C. R. soc. biol. Paris 85 1921 pp. 411-413.

165.—Plate, L. Fauna ceylanica, Untersuchungen zur Fauna Ceylon's nach den Sammlungen von L. Plate II. Uebersicht über biologische Studien auf Ceylon. Jenaische Zeitschr. 54 1916 pp. 1-42 pls. i-ix.

166.—Poche, F. Über eine in Vergessenheit geratene Art der *Echiuroidea*. Arch. Natg. Berlin Abt. A 86 H. 9 1920 (1921) pp. 102-104.

167.—Porter, Annie. The life histories of some Trematodes occurring in South Africa. S. Afric. Journ. Sc. Johannesburg 18 1921 pp. 156-163.

168.—Rahner, R. Die Biologie der Oxyuren. Centralbl. Bakt. Jena Abth. 1 85 Orig. 1921 pp. 374-376.

169.—Ransom, H. B. and Cram, E. B. The course of migration of *Ascaris*-larvae. Amer. Journ. trop. Med. Baltimore 1 1921 pp. 129-159 2 pls.

170.—Redfield, A. C. and Bright, E. M. The physiological changes produced by radium rays and ultraviolet light in the egg of *Nereis*. J. Physiol. Cambridge 55 1921 pp. 61-85 8 figs.

171.—Ridewood, W. G. (the late). On specimens of *Cephalodiscus densus* dredged by the "Challenger" in 1874 at Kerguelen Island. Ann. Mag. Nat. Hist. London ser. 9 8 1921 pp. 433-440 pl. xii.

172.—Riley, W. A. An annotated list of the animal parasites of foxes. Parasitol. Cambridge 13 1921 pp. 86-96.

173.—Robinson, E. M. Some common parasitic worms occurring in the domesticated animals in South Africa. S. Afric. Journ. Nat. Hist. Pretoria 2 1920 pp. 277-279.

174.—Rodenwaldt, E. and Röckemann, W. Zur Biologie von *Oxyuris vermicularis*. Centralbl. Bakt. Jena Abth. 1 86 Orig. 1921 pp. 421-424.

Röckemann, W. *vide* Rodenwaldt, E.

175.—Romieu, M. Sur les éleocytes de *Perinereis cultrifera* (Grube). C. R. Acad. sci. Paris 173 1921 pp. 246-249.

176.—Romieu, M. Les inclusions cristallines des éleocytes de *Nereis* et leurs relations avec la granulation éosinophile. C. R. Acad. sci. Paris 173 1921 pp. 367-370.

177.—Romieu, M. Morphologie du spermatozoïde du Chétopère. C. R. Acad. sci. Paris 173 1921 pp. 499-501.

178.—Romieu, M. Étude cytologique et microchimique des hématies coelomiques de la *Terebella lapidaria* (Linné). C. R. Acad. sci. Paris 173 1921 pp. 786-788.

179.—Romieu, M. Sur la structure et le laquage de l'hématie des Glycériens. C. R. soc. biol. Paris 85 1921 pp. 894-896.

180.—Rosenkrantz, A. Calcaire à Crania du port sud de Copenhague. Comm. Paleont. Mus. Mineral. Geol. Univ. Copenhague 16 1920 pp. 1-68 (French resumé pp. 69-79) 2 pls. 10 text-figs.

181.—Roubaud, E. et Descazeaux, J. Contribution à l'histoire de la mouche domestique comme agent vecteur des habronémoses d'Equidés. Cycle évolutif et parasitisme de l'*Habronema megastoma* (Rudolphi 1819) chez la mouche. Bull. soc. path. exot. Paris 14 1921 pp. 471-506.

182.—Rousseau, L. *Ankylostomum duodenale* Dubini 1843 existe en Guyane française à côté de *Necator americanus* W. Stiles 1902. Bull. soc. path. exot. Paris 14 1921 pp. 89-91.

183.—Rousseau, L. Le parasitisme par les Anguillules en Guyane. Bull. soc. path. exot. 14 1921 pp. 124-132.

184.—Rousseau, L. Notes relatives à *Strongyloides intestinalis*. Caractères et biologie de ses larves strongyloïdes. Bull. Soc. path. exot. Paris 14 1921 pp. 214-219.

185.—Sandground, J. The economic value of a study of the Nematodes, with remarks on the life-history of *Heterodera* in South Africa. S. Afr. Journ. Sci. Johannesburg 17 1921 pp. 322-334.

186.—Seurat, L. G. Description du *Strongylacantha glycyrrhiza* Bened. et affinités du genre *Strongylacantha* (*Trichostrongylidae*). Bull. Mus. Paris 1920 pp. 618-622.

187.—Seurat, L. G. *Litosoma filaria* Bened., type d'une nouvelle section de Filaires opisthodelphes. Bull. Mus. Paris 1921 pp. 103-106.

188.—Seurat, L. G. Description de la *Filaria martis* Gmel. Bull. soc. hist. nat. Alger 11 1920 pp. 34-36.

189.—Seurat, L. G. La Filare du moineau. Bull. Soc. nat. hist. Alger 12 1921 pp. 28-31 1 fig.

190.—Seurat, L. G. Orthogénèse des Filaires. Bull. Soc. hist. nat. Alger 12 1921 pp. 31-37 1 fig.

191.—Seurat, L. G. Variations dans le mode de ramification de la côte dorsale de la bourse caudale du mâle du *Strongylacantha glycyrrhiza* Bened. (*Trichostrongylidae*). Bull. soc. hist. nat. Alger 12 1921 pp. 202-204 1 fig.

192.—Shull, A. F. Chromosomes and the life-cycle of *Hydatina senta*. Biol. Bull. Wood's Hole 41 1921 pp. 55-61.

193.—Skriabin, K. J. La stéphanurose des porcs et son agent. Bull. Soc. path. exot. Paris 14 1921 pp. 47-54.

194.—Soparkar, M. B. The *Cercaria* of *Schistosomum spindalis* (Montgomery). Ind. J. Med. Res. Calcutta 9 1921 pp. 1-22 pls. i & ii.

195.—Soparkar, M. B. Notes on some furcocercous *Cercariae* from Bombay. Ind. J. Med. Res. Calcutta 9 1921 pp. 23-32 pls. iii-vi.

196.—Southern, R. Polychaeta of the Chilka Lake, and also of fresh and brackish waters in other parts of India. Mem. Ind. Mus. Calcutta 5 1921 pp. 563-659 pls. xix-xxxi.

197.—Southwell, T. On a larval Cestode from the umbrella of a jelly-fish. Mem. Ind. Mus. Calcutta 5 1921 pp. 559-562.

198.—Southwell, T. A note on the occurrence of certain Cestodes in new hosts. Ann. trop. Med. Parasitol. Liverpool 14 1921 pp. 295-297.

199.—Southwell, T. A new species of Cestode (*Anoplocephala vulgaris*) from an African rhinoceros. Ann. trop. Med. Parasitol. Liverpool 14 1921 pp. 355-364.

200.—Southwell, T. Cestodes from Indian poultry. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 161-166.

201.—Southwell, T. Cestodes from African rats. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 167 & 168.

202.—Southwell, T. A new species of Cestoda from a cormorant. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 169-171.

203.—Southwell, T. and Maplestone, P. A. A note on the synonymy of the genus *Zschokkeella*, Ransom 1909, and of the species *Z. guineensis* (Graham, 1908). Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 455 & 456.

Southwell, T. *vide* Yorke, W.

204.—Stauffer, H. Beobachtungen über die Lokomotionsart des *Hoplolaimus rusticus* (Micoletzky) und verwandter Formen, nebst einleitenden Bemerkungen über die Lokomotion der freilebenden Nematoden überhaupt. Biol. Centralbl. Leipzig 40 1920 pp. 356-375 2 pls.

205.—Steiner, G. Beiträge zur Kenntnis mariner Nematoden. Zool. Jahrb. Jena Abth. Syst. 44 1921 pp. 1-68 pls. i-iv.

206.—Steiner, G. Ost-asiatische marine Nematoden. Zool. Jahrb. Jena Abth. Syst. 44 1921 pp. 195-226 pls. x-xii.

207.—Steiner, G. Untersuchungen über den allgemeinen Bauplan des Nematodenkörpers. Ein Beitrag zur Aufhellung der Stammesgeschichte und der Verwandtschaftsverhältnisse der Nematoden. Zool. Jahrb. Jena Abt. Anat. 43 1921 pp. 1-96 Taf. i-iii.

208.—Steiner, G. *Phlyctainophora lamnae* n. g., n. sp., eine neue parasitische Nematodenform aus *Lamna cornubica* (Heringshai). Centralbl. Bakt. Jena Abth. 1 86 Orig. 1921 pp. 591-595.

- 209.—Stephenson, J. Penial and genital setae of *Lumbricus terrestris* L., Müll. Nature London 108 1921 pp. 337 & 338.
- 210.—Stephenson, J. Contributions to the morphology, classification and zoogeography of the Indian Oligochaeta. Proc. Zool. Soc. London 1921 pp. 103-142.
- 211.—Stephenson, J. Oligochaeta from Manipur, the Laccadive Islands, Mysore and other parts of India. Rec. Ind. Mus. Calcutta 22 1921 pp. 745-768 pl. xxviii.
- 212.—Stewart, F. H. On the life-history of *Ascaris lumbricoides* L. Part V. Parasitol. Cambridge 13 1921 pp. 37-47.
- 213.—Stewart, F. H. The anatomy and biology of the parasitic *Aphelenchi*. Parasitol. Cambridge 13 1921 pp. 160-179 pl. viii.
- 214.—Stewart, F. H. Recent work on round-worm infection (with discussion). Trans. R. Soc. trop. Med. London 14 1920 pp. 20-26.
- 215.—Stolte, H. A. Untersuchungen über experimentell bewirkte Sexualität bei Naiden. Biol. Centralbl. Leipzig 41 1921 pp. 535-557.
- 216.—Stunkard, H. W. Notes on North American blood-flukes. Amer. Mus. Novitates New York No. 12 pp. 1-5.
- Szidat, L. vide Hieronymi, E.
- 217.—Tannreuther, G. W. The development of *Asplanchna ebbsbornii* (Rotifer). J. Morphol. Philadelphia 33 1920 pp. 389-437 7 pls.
- 218.—Tattersall, W. M. Hirudinea. On the occurrence of *Trocheta subviridis*, Dutrochet, near Manchester. Lancs. and Cheshire Nat. Manchester 13 1921 pp. 211-213.
- Taylor, B. B. vide Johnston, T. H.
- 219.—Teodoro, G. Sopra una specie di *Trichina* parassita della *Lacerta muralis* Laur. (Nota prel.) Atti Accad. sci. Padova 11 1920 (1921) pp. 43-45.
- 220.—Travassos, L. Contribuições para o conhecimento da fauna helminthologica brasileira. XIII. Ensaio monografico da familia *Trichostrongylidae* Leiper 1909. Mem. Inst. Oswaldo-Cruz Rio de Janeiro 13 1921 pp. 5-135 (translations, pp. 3-82) pls. i-lvi.
- 221.—Travassos, L. Informações sobre o material helminthologico colleccionado na Ilha da Trindade em 1916. Arch. Mus. Nac. Rio de Janeiro 22 1919 pp. 159-167.
- 222.—Treadwell, A. L. *Nereis* (*Ceratonereis*) *alaskensis*, a new polychaetous Annelid from Alaska. Proc. U.S. Nat. Mus. Washington 60 1921 Art. 2 3 pp.
- 223.—Treadwell, A. L. *Leodicidae* of the West Indian Region. Papers Dept. Mar. Biol. Carnegie Inst. Washington 15 1921 pp. 1-131 pls. i-ix.
- 224.—Treadwell, A. L. Polychaetous Annelids collected at St. Paul de Loanda by the American Museum Belgian Congo Expedition. Amer. Mus. Novitates New York No. 8 1921 pp. 1-3.
- 225.—Twerdochlebow, M. Topographie und Histologie des Blutgefäßsystems der Aphroditiden. Jenaische Zeitschr. 54 1917 pp. 631-704 pls. xxvii-xxix.
- 226.—Van Cleave, H. J. Notes on two genera of ecto-parasitic Trematodes from fresh-water fishes. J. Parasitol. Urbana 8 1921 pp. 33-39.
- 227.—Van Cleave, H. J. Acanthocephala from the eel. Trans. Amer. Microsc. Soc. Minasha Wis. 40 1921 pp. 1-13 1 pl.
- 228.—Vandel, A. Notes biologiques sur les Planaires des environs de Montpellier. Bull. biol. France Belg. Paris 55 1921 pp. 239-259.
- 229.—Vandel, A. La régénération des glandes génitales chez les Planaires. C. R. Acad. sci. Paris 172 1921 pp. 1072-1074.
- 230.—Vandel, A. La question de la spécificité cellulaire chez les Planaires. C. R. Acad. sci. Paris 172 1921 pp. 1614-1617.
- 231.—Vogel, R. Ein *Cysticercus* des Regenwurmes als Jugendform der Vogeltänie, *Dilepis undula* (Schrank.). Centralbl. Bakt. Jena Abth. 1 85 Orig. 1921 pp. 370-372.

232.—Wade, B. The fossil Annelid genus *Hamulus* Morton, an operculate *Serpula*. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 41-46 pls. ix & x.

Wadley, F. M. *vide* Ackert, J. E.

233.—Wagner, O. Ueber Entwicklungsgang und Bau einer Fischtänie (*Ichthyotaenia torulosa* Butsch). Nebst Beiträgen zur Kenntniss einer Amphibientänie (*Nematotaenia dispar*, Gze.). Jenaische Zeitschr. 55 1917-1919 pp. 1-66 pls. i-iii.

234.—Walton, A. C. The spermatogenesis of *Ascaris felis* Goeze. J. Exp. Zool. Philadelphia 34 1921 pp. 189-201 2 pls.

235.—Wanner, H. E. Some faunal remains from the Trias of York County, Pennsylvania. Proc. Acad. Nat. Sci. Philadelphia 73 1921 pp. 25-37 pls. i-iii.

236.—Ward, H. B. A new blood fluke from turtles. J. Parasitol. Urbana 7 1921 pp. 114-128 pl. xii.

237.—Weithofer, M. Wissenschaftliche Ergebnisse der mit Unterstützung der Kaiserlichen Akademie der Wissenschaften in Wien aus der Erbschaft Treitl von F. Werner unternommenen Zoologischen Expedition nach dem angloägyptischen Sudan (Kordofan) 1914. Vogelcestoden aus Senaar und Kordofan I Theil. Anz. Akad. Wiss. Wien 53 1916 pp. 312 & 313.

238.—Woodcock, H. M. Vermidea. In: Zool. Rec. London 56 1919 pp. 1-35.

239.—Woodger, J. H. Notes on a Cestode occurring in the haemocoel of house-flies in Mesopotamia. Ann. applied biol. Cambridge 7 1921 pp. 345-351.

240.—Wülker, G. Zur Kenntniss der Nematoden-Gattungen *Allantonema* und *Bradynema*. Senckenbergiana Frankfurt A/M. 3 1921 pp. 1-9.

241.—Würzler, E. Beiträge zur Kenntniss der Reparationsprozesse bei Hirudineen. Jenaische Zeitschr. 56 1920 pp. 253-360 pls. xiii-xvi.

Yokogawa, S. *vide* Cort, W.

242.—Yorke, W. and Southwell, T. Lapped *Anoplocephala* in horses. Ann. trop. Med. Parasitol. Liverpool 15 1921 pp. 249-264 pl. xvii.

243.—Zimmermann, A. Recherches expérimentales sur l'élevage aseptique de l'anguille du vinaigre (*Anguilla oxophila* Schneider). Rev. Suisse Zool. Genève 28 1921 pp. 357-380.

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VII. BRACHIOPODA AND BRYOZOA

BY

W. N. EDWARDS.

(a) BRACHIOPODA

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- 2.—Assmann, P. Die Brachiopoden und Lamellibranchiaten der oberschlesischen Trias. Jahrb. k. pr. geol. Land. f. 1915 36 1 1916 pp. 586-638 pl. 30-36.
- 3.—Bell, A. Notes on the Later Tertiary Invertebrata. Ann. Rep. Yorkshire Phil. Soc. 1920 (1921) pp. 1-21.
- 4.—Berry, S. S. A New Neotreme Brachiopod from California. Ann. Mag. Nat. Hist. London ser. ix 8 (44) 1921 pp. 210-212 pl. xi.
- 5.—Bradley, J. H. The Brachiopoda of the Maquoketa of Iowa. Bull. Mus. Comp. Zool. lxiv 1921 pp. 503-525 2 pl.
- 6.—Caterini, F. Polimorfismo della *Terebratula (Pygope) aspasia*, Meneghini, nel Lias italiano. Atti Soc. Tosc. Sc. Nat. Pisa mem. 33 1921 pp. 82-95.
- 7.—Clark, F. W. and Wheeler, W. C. The Inorganic Constituents of Marine Invertebrates. Prof. Paprs. U.S. Geol. Surv. Washington 102 1917 pp. 1-56.
- 8.—Clarke, J. M. The Heavenly Twins. Nautilus 34 1921 pp. 138-9.
- 9.—Cobbold, E. S. The Cambrian Horizons of Comley (Shropshire) and their Brachiopoda, &c. Quart. Journ. Geol. Soc. London 76 1921 pp. 325-380 pl. xxi-xxiv.
- 10.—Collip, J. B. The alkali reserve of marine fish and invertebrates: the excretion of carbon dioxide. J. Biol. Chem. New York 44 1920 pp. 329-344.
- 11.—Dahmer, G. Die Fauna der obersten Koblenzschichten von Mandeln bei Dillenburg. Jahrb. k. pr. geol. Land. f. 1915 36 1 pp. 174-248 pl. 5-9.
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- 17.—Frech, F. Geologie Kleinasiens im Bereiche der Bagdadbahn. Ergebnisse eigener Reisen und paläontologische Untersuchungen. Zs. D. Geol. Ges. Berlin A 68 1916 pp. 1-325 24 plates 4 text-figs.
- 18.—Fuchs, A. Beitrag zur Kenntnis der Devonfauna der Verse- und der Hobracker Schichten des Sauerländischen Faciesgebietes. Jahrb. k. pr. Geol. Land. f. 1918 39 1919 pp. 58-95 pl. 5-9.
- 19.—Haack, W. Über eine marine Permfauna aus Nordmexiko nebst Bemerkungen über Devon daselbst. Zs. D. Geol. Ges. Berlin A 66 1914 pp. 482-504 2 plates 2 text-figs.
- 20.—Hayasaka, I. A peculiar Tertiary Terebratulid (*Magasella fibula* Reeve sp. em.). J. Geol. Soc. Tokyo 28 1921 pp. 1-5 1 pl.
- Hayasaka, I. See Yabe, H.
- 21.—Hennig, E. Die Fauna der deutsch-ostafrikanischen Urgonfazies. Zeit. D. Geol. Ges. Berlin A Abh. 68 1916 pp. 441-476.

22.—Heritsch, F. Versteinerungen aus dem Oberkarbon von Jauerburg-Assling in Oberkrain. *Carniola* ix 1918 pp. 60-67.

Hirschfeld, O. S. See Johnston, T. H.

23.—Holtedahl, O. Notes on the ordovician fossils from Bear Island collected during the Swedish expeditions of 1898 and 1899. *Norsk Geol. Tidsskr. Christiania* 5 1918 pp. 79-94 3 plates 3 text-figs.

24.—Hüffner, E. Beiträge zur Kenntnis des deutschen Kulms. *Jahrb. k. pr. geol. Land. f.* 1914 35 3 1915 pp. 448-548 pl. 17-20.

25.—Hüffner, E. Beiträge zur Kenntnis des Devons von Bythinien. *Jahrb. pr. Geol. Land. f.* 1916 37 1917 pp. 260-357 pl. 28-30.

25a.—Jackson, J. W. On the Occurrence of Lusitanian Brachiopods in the Persian Gulf. *Ann. Mag. Nat. Hist. London* [9] 7 1921 pp. 40-9.

26.—Johnston, T. H. and Hirschfeld, O. S. The Lingulidae of the Queensland Coast. *Proc. Roy. Soc. Queensland* 31 1920 pp. 46-82 2 pl.

27.—Koliha, J. Brachiopoda z Krušnohorských vrstev-da (Brachiopods of the beds of Krušna Hora da). *Časopis Mus. Král. Českého Prague* 92 1918 pp. 128-139.

28.—Koliha, J. Ramenonožci z řádu Atremat v českém středním Kambriu (Atrematous brachiopods of the middle Cambrian of Bohemia). *Časopis Mus. král. Českého Prague* 95 1921 pp. 29-31.

29.—Mitchell, J. Some New Brachiopods from the Middle Palaeozoic Rocks of New South Wales. *Proc. Linn. Soc. N.S. Wales* 45 4 1921 pp. 543-551 pl. 31.

30.—Price, W. A. Shell Regeneration in a Pennsylvanian Brachiopod. *Journ. Washington Acad.* 11 1921 pp. 32-36 1 fig.

31.—Quiring, H. Beiträge zur Kenntnis der Spiriferenfauna des Mitteldevons der Eifel. *Jahrb. pr. Geol. Land. f.* 1914 Bd. 35 Teil 1 pp. 327-335 pl. 13.

32.—Raymond, P. E. A Contribution to the Description of the Fauna of the Trenton Group. *Mus. Bull. Geol. Surv. Canada* 31 1921 pp. 1-64.

33.—Reed, F. R. C. Notes on the Fauna of the Lower Devonian Beds of Torquay, Part II, Brachiopoda. *Geol. Mag. London* 58 1921 pp. 313-324.

34.—Rollier, L. Synopsis des Spirobranches (Brachiopodes) Jurassiques Celto-Souabes. 4me partie (Zeillerides—Répertoires). *Abh. Schweiz. Pal. Ges. (Mém. soc. Pal. Suisse Genève)* 44 1919 pp. 279-422.

35.—Rosenkrantz, A. Calcaire à Crania du port sud de Copenhagen. *Comm. Paleont. Mus. Mineral. Geol. Univ. Copenhagen* 16 1920 pp. 1-68 (French résumé pp. 69-79) 2 plates 10 text-figs.

36.—Spriestersbach, J. Neue Versteinerungen aus dem Lenneschiefer. *Jahrb. pr. geol. Land. f.* 1917 38 1919 pp. 434-512.

37.—Stefanini, G. Fossili del Neogene Veneto. Parte seconda. Brachiopoda-Echinodermata. *Palaeontogr. Italica Pisa* 25 1919 pp. 127-171 2 pls. 5 text-figs.

38.—Størmer, L. Om nogen fossilfund fra etage 3 a a ved Vækkerø, Kristiania. *Norsk Geol. Tidsskr. Christiania* 6 1920 pp. 1-15 2 plates 3 text-figs.

39.—Trechmann, C. T. Some remarkably Preserved Brachiopods from the Lower Magnesian Limestone of Durham. *Geol. Mag. London* 58 1921 pp. 538-543 1 plate 2 text-figs.

40.—Viëtor, W. Das Koblenz-quartzit, seine Fauna, Stellung und linksrheinische Verbreitung. *Jahrb. pr. geol. Land. f.* 1916 37 1919 pp. 317-476 pl. 16-18.

41.—Vinassa de Regny, P. L'ordoviciano del Portixeddu presso Flumini maggiore. *Riv. Ital. paleont. Parma* 24 1918 pp. 43-47.

42.—Weller, S. The Geology of Hardin County. Part VI. Paleontology. *Bull. Geol. surv. Illinois Urbana* 41 1920 pp. 313-377 8 plates.

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43.—Wilson, A. E. The range of certain Lower Ordovician Faunas of the Ottawa Valley, with descriptions of some new species. Mus. Bul. Ottawa 33 1921 pp. 19-57 3 plates 7 text-figs.

44.—Yabe, H. and I. Hayasaka. Palaeontology of Southern China. Geogr. Research in China 1911-16 Reports Tokyo 1920 pp. 1-222 Atlas 28 pl.

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†*Acrothyra comleyensis* sp. n. Cambrian Shropshire, COBBOLD Quart. Jour. Geol. Soc. 76 1921 p. 348.

†*Acrotreta schmalensei* var. *matleyi* n. Cambrian Shropshire, COBBOLD Quart. Journ. Geol. Soc. 76 1921 p. 346.

†*Athyrisina* gen. n. p. 176 type *squamosa* sp. n. p. 180, var. n. *rhomboidalis*, p. 182, *minor*, sp. n. p. 183, Devonian, S. China, YABE & HAYASAKA Geogr. Rep. Tokyo, 1920.

†*Atrypa reticularis* var. n. *alta* Devonian, Iowa, FENTON 15 p. 216.—†*A. reticularis* var. n. *auriculata*, S. China, Devonian, YABE & HAYASAKA Geogr. Rep. Tokyo 1920 p. 171.

†*Aulacothyris spathula*, *agnata* p. 343, *fusiformis*, *piriformis*, *griffini*, *cortoniensis*, *petrii* p. 346, *clemishawii*, *leckhamptonensis* p. 347, *incrassata*, *blakei*, *wrighti* p. 348, *nippensis*, *crewkerniensis* p. 349, *chalfordensis*, *nior-tensis*, *honorinae* p. 350, *clerci*, *alveata* p. 352, *anatina*, *sankaensis*, *parallela* p. 353, *schöndorfi* p. 356, *unguis* p. 357, spp. n. Jurassic, Europe, ROLLIER Mém. soc. pal. suisse Genève 44 1920.

†*Barrandella molongensis* sp. n. Silurian N.S. Wales, MITCHELL Proc. Linn. Soc. N.S. Wales 45 p. 543.

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†*Chaetetes* sp. n. [not named] Carboniferous, Carniola, HERITSCHE 22 p. 62.

†*Chascothyris cilicica* sp. n. Devonian, Taurus p. 215 figs. 7A-C, FROEH Zs. D. geol. Ges. A 68 1916.

†*Clitambonites humilis* sp. n. Devonian Germany, FUCHS Jahrb. pr. geol. Land. 39 1919 p. 83.—†*C. trentonensis, ruedemanni* spp. n. Ordovician Canada, RAYMOND Mus. Bull. Geol. Surv. Can. 31 1921 p. 27.

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†*Cyrtina intermedia* var. n. *utrimquesulcata* Devonian, Germany, FUCHS Jahrb. pr. geol. Land. 39 1919 p. 68.

†*Dalmanella whittakeri, resupinata* spp. n. Ordovician, Canada, RAYMOND Mus. Bull. Geol. Surv. Can. 31 p. 16.

†*Dielasma follmanni* sp. n. Devonian, Germany, DAHMER Jahrb. pr. geol. Land. f. 1915 36 p. 232.

†*Donvillina arcuata* var. n. *maxima* Devonian, Iowa, FENTON 15 p. 215.

†*Glassia* (?) *minuscule* sp. n. Devonian Germany, DAHMER Jahrb. pr. geol. Land. 40 1921 p. 287.

†*Hamptonina*, gen. n. type *H. buckmani* Moore p. 361, ROLLIER Mém. soc. pal. suisse Genève 44 1920.

†*Leptaena raymondi* sp. n., Iowa, Ordovician, BRADLEY Bull. Mus. Comp. Zool. 64 1921 p. 515.

Lingula bancrofti sp. n., JOHNSON & HIRSCHFELD Proc. Roy. Soc. Queensland 31 1920 p. 67 pl. i f. 1-4.—†*L. densbergensis* sp. n. Devonian, Germany, DIENST Jahrb. pr. geol. Land. 34 1914 p. 598.—†*L. narrawayi*, sp. n. Lower Ordovician, Ottawa p. 49 pl. iii fig. 4, WILSON Mus. Bull. Ottawa 33 1921.

†*Lingulella bohémica, matthewi* spp. n. Cambrian, Bohemia, KOLIHA Čas. Mus. Král. českého Prague 95 1921 p. 29.—†*L. libetovensis* sp. n. Tremadoc, Bohemia, KOLIHA Čas. Mus. Král. českého Prague 92 1918.—†*L. viridis* sp. n. Cambrian Shropshire, COBBOLD Quart. Journ. Geol. Soc. 76 1921 p. 341.

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†*Magasella fibula* Tertiary, Japan, HAYASAKA 20 p. 1.

†*Micromitra (Paterina) rhodesi, kingi* spp. n. p. 330, *minor* sp. n. p. 333 and var. *gibbosa* n. p. 334, COBBOLD Quart. Journ. Geol. Soc. 76 1921.

†*Molongia elegans* gen. et sp. n. Silurian N.S. Wales, MITCHELL Pr. Linn. Soc. N.S. Wales 45 p. 546.

†*Obolella atlantica* varr. *comleyensis, transversa* n. Cambrian Shropshire, COBBOLD Quart. Journ. Geol. Soc. 76 1921 p. 324-4.

†*Obolus kloučeki* sp. n. Tremadoc, Bohemia, KOLIHA, Čas. Mus. Král. českého Prague 92 1918.—†*O. parvulus* sp. n. p. 338, *Obolus* (?) *linnarssoni* p. 338, *gibbosus* p. 339, spp. n. Cambrian Shropshire, COBBOLD Quart. Journ. Geol. Soc. 76 1921.

†*Orthis bifurcata* sp. n. var. *sardoa* var. n. Ordovician, Sardinia p. 45. VINASSA DE REGNY Riv. Ital. paleont. 24 1918.—†*O. fornicatimcurvata* p. 58, *torifera* p. 61 spp. n. Devonian, Germany, FUCHS Jahrb. pr. geol. Land. 39 1919.—†*O. striatula* var. n. *interstitialis*, Devonian, Germany, DAHMER 11 p. 238.—†*O. tectiformis* mut. n. *kahlebergensis* Devonian, Germany, DAHMER Jahrb. pr. geol. Land. 37 1918 p. 516.

†*Orthoidea canavarii* sp. n. Lias Italy, FRANCESCHI Atti Soc. Tosc. Sc. Nat. 33 1921 p. 217.

†*Orthotetes euzona* sp. n. Devonian Germany, FUCHS Jahrb. pr. geol. Land. 39 1919 p. 65.

†*Platystrophia minuta* sp. n. Ordovician Canada, RAYMOND Mus. Bull. Geol. Surv. Can. 31 p. 20.

†*Plectambonites youngi* sp. n. Ordovician, Canada, RAYMOND Mus. Bull. Geol. Surv. Can. 31 1921 p. 24.

†*Rafinesquina altidorsata* p. 516, *subquadrata, rugulifera* p. 517, spp. n., Ordovician, Iowa, BRADLEY Bull. Mus. Comp. Zool. 64 1921.—†*R. precursor* sp. n. Ordovician Canada, RAYMOND Mus. Bull. Geol. Surv. Can. 31 p. 22.—†*R. rugosa*, sp. n. Lower Ordovician, Ottawa, p. 51 pl. iii figs. 8, 9, WILSON Mus. Bull. Ottawa 33 1921.

†*Rhynchonella cuboides* Sow. var. *cilico-armenica* var. n. Devonian, Armenia, Taurus, p. 212 pl. 1 figs. 1A-E,

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†*Sieberella glabra* sp. n. Silurian, N.S. Wales, MITCHELL Proc. Linn. Soc. N.S. Wales 45 p. 549.

†*Spirifer bowningensis* sp. n. Silurian, N.S. Wales, MITCHELL Proc. Linn. Soc. N.S. Wales 45 p. 545.—†*S. cyrtinaeformis* var. n. *helenae* Devonian, Iowa, FENTON 15 p. 216.—†*S. goslariensis* sp. n. p. 281, *hystericus* mut. n. *minor* p. 284, Devonian, Germany, DAHMER Jahrb. pr. geol. Land. 40 1921.—†*S. gwinnieri*, sp. n. Carboniferous, Taurus p. 249 pl. 7 figs. 1-3B, FRECH Zs. D. geol. Ges. A 68 1916.—†*S. nep-tunicus* sp. n. Devonian, Germany, QUIRING Jahrb. pr. geol. Land. 35 1914 p. 331.—†*S. orestes* var. n. *websteri* Devonian, Iowa, FENTON 15 p. 217.—†*S. pinguis* Sou. var. *anglo-asiatica* var. n. Carboniferous, Taurus and Yorkshire p. 251 pl. 8 figs. 2A B, 3 A B, FRECH Zs. D. geol. Ges. A 68 1916.—†*S. subcuspidatus* var. n. *longeincisa* Devonian, Germany, DAHMER Jahrb. pr. geol. Land. 37 1918 p. 512.—†*S. undigranatus* sp. n. Devonian, Germany, FUCHS Jahrb. pr. geol. Land. 39 1919 p. 66.—†*S. whitneyi* var. n. *rockfordensis*, *gradatus* p. 219, *productus* p. 220 Devonian, Iowa, FENTON 15.

†*Spiriferina apenninica* var. *integra* n. Lias, Italy, FRANCESCHI 16 p. 219.—†*S. haarmanni*, sp. n. Permian, Mexico, p. 492 pls. 38 figs. 7A-C 39 figs. A-C, HAACK Zs. D. geol. Ges. Berlin A 66 1914.—†*S. subspinosa* sp. n. Shetler-ville formation, Illinois and Kentucky, pl. 352 p. viii figs. 7-14, WELLER Bull. Geol. Surv. Illinois 41 1920.

†*Strophomena abscissa*, *laminata* spp. n., Iowa, Ordovician, BRADLEY Bull. Mus. Comp. Zool. 64 1921 p. 522.—†*S. (Leptagonia) barrandei* sp. n. Devonian Bithynia, HÜFFNER Jahrb. pr. geol. Land. 37 1917 p. 297.—†*S. canadensis* sp. n. Lower Ordovician, Ottawa p. 50 pl. iii fig. 7, WILSON Mus. Bul. Ottawa 33 1921.—†*S. foveata* sp. n. Ordovician Canada, RAYMOND Mus. Bul. Geol. Surv. Can. p. 24.

†*Stropheodonta kayseri* sp. n. Devonian, Bithynia, HÜFFNER Jahrb. pr. geol. Land. 37 1917 p. 299.—†*S. triculta* p. 61, *sera* p. 85, *invicistria* p. 86, spp. n. Devonian, Germany, FUCHS Jahrb. pr. geol. Land. 39 1919.

†*Strophonella reversa* var. n. *gravis*, Devonian, Iowa, FENTON 15 p. 214.

†*Syringothyris cuspidata* Sow. mut. *curvata* mut. n. Carboniferous, Taurus, p. 233 pl. 5 figs. 1A-8, FRECH Zs. D. geol. Ges. A 68 1916.

†*Terebratella roemeri* p. 358, *loch-ensis* p. 359, *fasciculosa* p. 360, spp. n. Jurassic, Europe, ROLLIER Mém. soc. pal. suisse Genève 44 1920.

†*Terebratula cerasulum* var. *scutella* n. Lias, Italy, FRANCESCHI 16 p. 224.—†*T. de-tonii*, sp. n. Tertiary, Venetia, p. 128 pl. 15 (9) figs. 8, 9, STEFANINI Palaeontogr. Italica 25 1919.—†*T. harmeri* n. sp. Pliocene, England, BELL Ann. Rep. Yorks Phil. Soc. 1920 p. 2.

†*Thecidia* (?) *narniensis* sp. n. Lias, Italy, FRANCESCHI Atti Soc. Tosc. Sc. Nat. 33 1921 p. 220.

†*Trigonellina interlaevigata* p. 366, *intercostata*, *trimedia* p. 367, *quenstedti*, *zitteli* p. 368, spp. n. Jurassic, Europe, ROLLIER Mém. soc. pal. suisse Genève 44 1920.

†*Uncites* (Bornhardtina) *laevis* var. n. *onychophora* Devonian, Germany, SPIESTERSBACH 36.

†*Walcottina* gen. n. p. 344 type *lap-worthi* sp. n. p. 336, *elevata* sp. n. p. 337, COBBOLD Quart. Jour. Geol. Soc. 76 1921.

†*Waldheimia aquilina* sp. n. p. 230, *furlana* var. *crassa* n. p. 228, Lias, Italy, FRANCESCHI Atti Soc. Tosc. Sc. Nat. 33 1921.

Zeilléridés, nom. nov. for *Waldheimiidae* H. Douvillé p. 279, ROLLIER Abh. Schweiz. Pal. Ges. (Mém. Soc. Pal. Suisse Genève) 44 1919.

†*Zeilleria dewalquei*, *rostrata*, *lageni-formis*, *subphaeroidalis*, Luxembourg and Wurttemberg p. 287, *leptonumismalis*, Suabia p. 289, *ovalis*, Wurttemberg, *ovoides*, Westphalia p. 290, *rani*, Suabia p. 291, 293, *culeiformis*, Wurttemberg p. 300, *harsfieldensis* England p. 302, *cuneata* p. 304, *suborbiculata*,

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†*Zittelina*, **gen. n.** = *Megerlea* Zittel, type *Z. orbis* Quenst. p. 368, ROLLIER Mém. soc. pal. suisse Genève 44 1920.—
†*Z. billodensis*, *margaritoides* p. 369, **spp. n.** Jurassic, Europe, ROLLIER Mém. soc. pal. suisse Genève 44 1920.

†*Zygospira tantilla* **sp. n.** Iowa Ordovician, BRADLEY Bull. Mus. Comp. Zool. 64 1921 p. 525.

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- 6.—**Canu, F.** Les Bryozoaires d'eau douce de Seine-et-Oise. Bull. Soc. Sci. Seine-et-Oise 2 1920 p. 43.
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†*Acanthoporifera* subtrib. n. of *Diplotrypacea* q.v., incl. *Acanthotrypidae* fam. n. and *Monticuliporidae* em., VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Acanthotrypella* gen. n. type *Batostoma variabile*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 221.

†*Acanthotrypina* subgen. n. of *Acanthotrypa* type *Rhombotrypa spinulifera*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 221.

†*Adeonellopsis cimex*, sp. n. Tertiary, France p. 307 pl. 10 fig. 1, CANU Bull. soc. géol. Paris 18 1918 (1919).

†*Aeolopora nebulosa* sp. n. Cretaceous, England, LANG Cat. Cret. Bryozoa 1921 p. 163.

†*Alderina lazata*, sp. n. Tertiary, France p. 298 pl. 8 fig. 4, CANU Bull. soc. géol. Paris 18 1918 (1919).—†*A. filimargo*, sp. n. Tertiary, France p. 299 pl. 8 figs. 1, 2, CANU Bull. soc. géol. Paris 18 1918 (1919).—†*A. pyrenaica*, sp. n. Cretaceous, Pyrenees p. 187 pl. 5 fig. 1, CANU Bull. soc. géol. 19 1919 (1920).

†*Angelopora missa* sp. n. Cretaceous, England, LANG Cat. Cret. Bryozoa 1921 p. 120.

†*Aostipora* gen. n. type *Trematopora cystata*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 230.

†*Badogliopora* gen. n. type *Eridotrypa spinosa*, *Badogliopora* subgen. n. type *Eridotrypa parvulipora*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 221.

†*Balticopora* gen. n. type *Hemiphragma tenuimurale*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Balticoporella* gen. n. type *Hemiphragma glabrum*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Batostomella antiqua* sp. n. Ordovician, Southern China, YABE & HAYASAKA Geogr. Rep. Tokyo 1920 p. 43.

†*Batostomellina* subgen. n. of *Batostomella* type *B. granulifera*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 227.

Beania ostia sp. n. India, ROBERTSON Rec. Ind. Mus. xxii 1921 p. 38.

†*Beisselina labiatula*, sp. n. Cretaceous, Pyrenees p. 197 pl. 5 figs. 17, 18, CANU Bull. soc. géol. 19 1919 (1920).—†*B. mucronata*, sp. n. Cretaceous, Pyrenees p. 197 pl. 5 figs. 19, 20, CANU Bull. soc. géol. 19 1919 (1920).—†*B. pustulosa* sp. n. Cretaceous, Pyrenees p. 196 pl. 4 figs 3, 4, CANU Bull. soc. géol. 19 1919 (1920).

†*Berenicea striatula*, sp. n. Tertiary, France p. 309 pl. 11 figs 1–6, CANU Bull. soc. géol. Paris 18 1918 (1919).

Brettia ijinai sp. n. Japan, OKADA Annot. Zool. Jap. 10 1921 p. 25.

†*Cadornipora* gen. n. type *Homotrypa nodulosa*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 230.

†*Calpensia profunda*, sp. n. Tertiary, France p. 301 pl. 8, fig. 6, CANU Bull. soc. géol. Paris 18 1919.

†*Canavaripora* gen. n. type *Homotrypa nitida*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 216.

Carbasia sagamiensis sp. n. Japan, OKADA Annot. Zool. Jap. 10 1921 p. 23.

Conescharellinidae, WATERS 19 p. 399.

†*Conopeum orbicularium*, sp. n. Tertiary France p. 297 pl. 7 figs. 5, 6, CANU Bull. soc. géol. Paris 18 1918 (1919).

†*Cribrilina nevianii* sp. n. Pliocene, Italy, CIPOLLA 7 p. 69.

†*Cystodictya labiosa* sp. n. Shetlerville formation and Renault limestone, Illinois and Kentucky, Paint Creek formation, Illinois p. 350 pl. vii figs. 7-24, WELLS Bull. Geol. Surv. Illinois 41 1920.

†*D'Annunziopora* gen. n. type *Stigmatala foordi*, *D'Annunzioporina* subgen. n. type *S. inflecta*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 228.

†*Dianulitidae* fam. n. type *Dianulites fastigiata*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 224.

†*Diazipora* gen. n. type *Mesotrypa milleporacea*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 218.

†*Diplotrypacea* trib. n. *Diplotrypidae* fam. n. *Diplotrypella* gen. n. type *Eridotrypa densipora*; *Diplotrypa*, em. subgen. n. *Diplotrypina*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 217.

†*Disheloporidae* fam. n. incl. *Dishelopora* and *Hystriopora*, LANG Cat. Cret. Bryozoa 1921 p. 215.

†*Distansescharella discreta* sp. n. Cretaceous, England, LANG Cat. Cret. Bryozoa 1921 p. 139.—†*D. sequenzai* sp. n. Pliocene, Italy, CIPOLLA 7 p. 70.

†*Dittoporidae* fam. n. for *Dittopora* Dyb. em. type *D. clavaeformis*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 231.

†*Electra brevifrons* sp. n. Tertiary, France p. 295 pl. 7 figs. 3, 4, CANU Bull. soc. géol. Paris 18 1919.—†*E. distefanovi* sp. n. Pliocene, Italy, CIPOLLA 7 p. 26.

†*Ellisina* ? *ogivalis* sp. n. Tertiary, France p. 298 pl. 7 fig. 7, CANU Bull. soc. géol. Paris 18 1919.

†*Eridotrypina* subgen. n. of *Eridotrypa* type *E. nodulosa*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 225.

†*Escharifora grandiporosa*, sp. n. Cretaceous, Pyrenees p. 195 pl. 5 figs. 11, 12, CANU Bull. soc. géol. 19 1920.

†*Escharopora frondosa*, sp. n. Lower Ordovician, Ottawa p. 48 pl. ii figs. 5, 6, WILSON Bul. Mus. Ottawa 33 1921.

†*Esthonioporidae* fam. n. genotype *Esthoniopora communis*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 216.

Euthryoides simplex sp. n. Japan, OKADA Annot. Zool. Jap. 10 1921 p. 21.

Farciminiaria andamanensis sp. n. Andamans, ROBERTSON Rec. Ind. Mus. 22 1921 p. 44.

Flustra stolonifera sp. n. Japan, OKADA Annot. Zool. Jap. 10 p. 19.

†*Gortanipora* gen. n. type *Homotrypa bassleri*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 223.

†*Hippodiplosia ovoidea*, sp. n. Tertiary, France p. 304 pl. 9 figs. 3, 4, CANU Bull. soc. géol. Paris 18 1919.

†*Hippopodina campanulata* sp. n. Pliocene, Italy, CIPOLLA 7 p. 133.

†*Hippoporina canui* p. 93, *defensa* p. 96, *longidens* p. 96, *checciai* p. 97 spp. n. Pliocene, Italy, CIPOLLA 7.

†*Homotrypella bassleri* nom. nov. for *H. nodosa* Ulr. and Bassler non Ulrich, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 230.

†*Homotrypidae* fam. n. type *Homotrypa curvata*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 229.

Kinetoskias arabianensis sp. n. Arabian Sea, ROBERTSON Rec. Ind. Mus. 22 1921 p. 39.

†*Labiopora altavillae* sp. n. Pliocene, Italy, CIPOLLA 7 p. 59.

†*Lagynopora ollula* p. 60, *vasculum* p. 66, spp. n. Cretaceous, England, LANG Cretac. Bryozoa 1920.

†*Leeporina* gen. n. type *Discrytella nana*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Leioclemina* subgen. n. of *Leioclema* type *L. ramulosum*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 227.

†*Leptocheilopora gasteri* sp. n. Cretaceous, England, LANG Cat. Cret. Bryozoa 1921 p. 71.

†*Leptotrypella* gen. n. type *Heterotrypa barrandei*, *Leptotrypellina* subgen. n. type *Bythopora subgracilis*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 222.

†*Lichenopora magnicentralis* sp. n. Tertiary, France p. 311 pl. 9 fig. 8, CANU Bull. soc. géol. Paris 18.

†*Membraniporina manzonii* sp. n. Pliocene-Italy, CIPOLLA 7 p. 29.

†*Membranipora parvicella* sp. n. Tertiary, France p. 297 pl. 7 fig. 8, CANU Bull. soc. géol. Paris 18.—*M. spinostoma* sp. n. p. 47, Persian Gulf, *amoyensis*, sp. n. China p. 49, *devinensis* p. 50, *hugliensis* p. 51 spp. n. Bengal, ROBERTSON Rec. Ind. Mus. 22 1921.

†*Mesoporifera* subtrib. n. of *Diplotrypacea* q.v. incl. *Diplotrypidae* and *Prasoporidae* q.v., VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 217.

†*Monotrypacea* trib. n. *Monotrypidae* fam. n. genotype *Monotrypa undulata*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 215.

Neoeuthyris gen. n. for *Euthyris woosteri*, MacG., BRETNALL Rec. Austr. Mus. 13 p. 157.

†*Nicholsonella ottawaensis* sp. n. Lower Ordovician, Ottawa p. 47 pl. ii figs. 3, 4, WILSON Bul. Mus. Ottawa 33.

†*Nicholsonellidae* fam. n. type *Nicholsonella gibbosa*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 224.

†*Ogiva grandis*, sp. n. Cretaceous, Pyrenees p. 189 pl. 4 figs. 1, 2, CANU Bull. soc. géol. 19.

†*Ogivalina gemmellaroi* sp. n. Pliocene, Italy, CIPOLLA 7 p. 26.

†*Pancheilopora parvilabrosa* sp. n. Cretaceous, England, LANG Cat. Cret. Bryozoa 1921 p. 154.

†*Petalotrypella* subgen. n. of *Monotrypella*, type *M. spongiicola*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 216.

Petralia laccadivensis sp. n. India, ROBERTSON Rec. Ind. Mus. 22 1921 p. 56.

†*Phragmopora* gen. n. type *Hemiphragma multiporatum*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Phragmoporella* gen. n. type *Hemiphragma maculatum*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Phylactella insolita* p. 306 pl. 10 figs. 2 3 4, pl. 9 fig. 5.—†*P. magniporosa* p. 306 pl. 9 fig. 7, spp. n. Tertiary, France, CANU Bull. soc. géol. Paris 18.

†*Pleuroschizella*, gen. n. *anaticula* sp. n. Tertiary, France p. 303 pl. 9 fig. 6 CANU Bull. soc. géol. Paris 18.

†*Pliophlæa charmanensis* sp. n. Cretaceous England, LANG Cat. Cret. Bryozoa 1921 p. 184.

Pollaplacium wilsoni sp. n. Australia, BRETNALL Rec. Austr. Mus. 13 p. 160.

†*Polyascoecia* gen. nov. type *Idmonea cancellata* Reuss. and including *P. (Retecæna) lichenoides* Goldfuss., CANU Bull. Soc. géol. 19 1919 p. 206.

†*Prasoporella* gen. n. type *Prasopora carnica*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Prasoporidae* fam. n. incl. *Prasopora* em. and *Balticopora*, *Balticoporella*, *Phragmopora*, *Phragmoporella*, *Prasoporella* and *Leeporina* genn. n. VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Proboscina bifurcata*, sp. n. Tertiary, France p. 309 pl. 10 figs. 5, 6, CANU Bull. soc. géol. Paris 18

†*Prosotopora flacca* sp. n. Cretaceous, England, LANG Cat. Cret. Bryozoa 1921 p. 242.

†*Revaloporidae* subfam. n., *Revalopora* gen. n. type *Stellipora revalensis*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 220.

†*Rhagasostoma celsopora* Cretaceous, Pyrenees p. 193 pl. 5 figs. 7–10.—†*R. lanceolata* Tertiary, France p. 300 pl. 8 fig. 3, spp. n., CANU Bull. soc. géol. Paris 18.

†*Rhamphostomella* (?) *magniaperta*, sp. n. Tertiary, France p. 305 pl. 9 fig. 1, CANU Bull. soc. géol. Paris 18.

Schizoporella chondra sp. n. Juan Fernandez, MARCUS The nat. hist. of Juan Fernandez 3 P. 1 p. 105 figs.—*S. dutertrei* var. *foliacea* n., India, ROBERTSON Rec. Ind. Mus. 22 1921 p. 55.

Selenariadae, WATERS 19 p. 399.

†*Septopora similis* sp. n. St. Louis limestone (lower part) Missouri p. 348

pl. vii figs. 1–4, WELLER Bull. Geol. Surv. Illinois 41.

Smittina euparypha sp. n. Juan Fernandez, MARCUS The nat. hist. of Juan Fernandez 3 P. 1 p. 109 figs.

†*Sonninipora* gen. n. type *Hallopora tenuispinosa*, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 226.

†*Treptostomata* Classification, Palaeozoic, VINASSA DE REGNY 18.

†*Triplotrypacea* trib. n. incl. *Dianulitidae*, *Nicholsonellidae*, *Dittoporidae*, *Homotrypidae* famm. n. and *Heterotrypidae* em. Palaeozoic, VINASSA DE REGNY Atti Soc. Ital. Sci. Nat. 59 p. 224.

†*Trypostega convexa*, sp. n. Tertiary, France p. 304 pl. 9 fig. 2, CANU Bull. soc. géol. Paris 18.

VIII. MOLLUSCA

ARRANGED BY

H. B. PRESTON.

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I.—TITLES.

1.—Abrard, R. Sur une faune mésoliasique de Sidi Mouley Yakoub (Maroc occidental). C. R. Acad. Sci. Paris **170** 1920 pp. 278–279.

2.—Adkins, W. S. and Winton, W. M. Paleontological correlation of the Fredericksburg and Washita Formations in North Texas. Bull. Texas Univ. Austin Texas **No. 1945** 1919 pp. 1–128 pls. i–xxi.

Adkins, W. S. *vide* Winton, W. M.

3.—Agos, E. L. Yacimientos de fósiles carboníferos de Arenas de Cabrales (Asturias). Bol. Soc. Esp. Hist. Nat. Madrid **21** 1921 pp. 59–62.

4.—Aldrich, T. H. New Eocene species from Alabama. Bul. Amer. Paleont. Ithaca N.Y. **9** No. **37** 1921 pp. 5–32 pls. i–iii.

5.—Airaghi, C. Sulla scomparsa di alcuni gruppi di animali e di vegetali. Natura Milano **9** 1918 pp. 124–142.

6.—Alkins, W. E. Notes on the growth and variation of *Unio pictorum* (Linné). J. Conch. Leeds **16** 1921 pp. 228–233.

7.—Alkins, W. E. Some recent records of Mollusca in the Churnet Valley of North-East Staffordshire. Ann. Rep. N. Staff. F. Cl. **55** 1920–21 pp. 88–105.

8.—Alkins, W. E. Fauna of the Brachiopod Beds at Cauldon, Staffs. Geol. Mag. London **58** 1921 pp. 367–369.

9.—Allen, W. R. Studies of the biology of freshwater mussels. Experimental studies of the food relations of certain *Unionidae*. Biol. Bul. Wood's Holl. Mass. **40** 1921 pp. 210–241.

10.—Andrée, K. Ueber einige fossile Problematika. I. Ein Problematikum aus dem Paläozoikum von Battenberg an der Eder und des desselbe beherbergende Gestein. Neues Jahrb. Min. Geol. J. Pal. **1** 1920 pp. 55–88 pl. i.

11.—Annandale, N. The apple-snails of the Malay Peninsula. J. Fed. Malay Mus. Kuala Lumpur **10** 1921 pp. 193–196.

12.—Annandale, N. The aquatic fauna of Seistan. A summary. Rec. Ind. Mus. Calcutta **18** 1921 pp. 235–248.

13.—Annandale, N. Materials for a generic revision of the freshwater gastropod molluscs of the Indian Empire. No. 3. The freshwater genera of *Hydrobiidae*. Rec. Ind. Mus. Calcutta **22** 1921 pp. 1–6.

14.—Annandale, N. Materials for a generic revision of the freshwater gastropod molluscs of the Indian Empire. No. 4. The Indian *Ampul-lariidae*. Rec. Ind. Mus. Calcutta **22** 1921 pp. 7–12.

15.—Annandale, N. and Prashad, B. The Indian molluscs of the estuarine subfamily *Stenothyridinae*. Rec. Ind. Mus. Calcutta **22** 1921 pp. 121–136 pl. xvi.

16.—[Anon.]. Field Meeting, 12th April, 1919: Bourne End. Trans. Hertford. Nat. Hist. Soc. and F. Cl. **17** 1921 p. li.

17.—[Anon.]. Le conchiglie marine del Genovesato. Natura Milano **7** 1916 pp. 183–184.

18.—Ashby, E. Description of Bracebridge Wilson Collection of Victorian Chitons, with description of two new species. Proc. R. Soc. Vict. Melbourne **33** 1921 pp. 149–158 pl. viii.

19.—Ashby, E. The occurrence of three species of *Stenochiton* in Western Australia. J. R. Soc. West Austral. Perth **6** 1921 pp. 108–111.

20.—Awerinzew, S. Einige Beiträge zur Verbreitung der Bodenfauna in Kola-Fjorde. Intern. Rev. Hydrobiol. Leipzig **2** 1909 pp. 375–385.

21.—Baden, K. Zur Gliederung des Oberen Muschelkalks in Lothringen. Zs. D. Geol. Ges. Berlin A **71** 1919 pp. 104–121.

- 22.—Bacchus, D. *Pyramidula rotundata* var. *alba* at Brislington, Somerset. N. J. Conch. Leeds 16 1921 p. 155.
- 23.—Bacchus, D. *Milax gagates* in Gloucester West. J. Conch. Leeds 16 1921 p. 157.
- 24.—Bacchus, D. *Polita rogersi* in Leigh Woods, Somerset. N. J. Conch. Leeds 16 1921 p. 235.
- Baden, K. See No. 21.
- 25.—Baker, F. C. New forms of Pleistocene mollusks from Illinois. Nautilus Boston Mass. 35 1921 pp. 22-24.
- 26.—Baker, F. C. Preparing collections of the mollusca for exhibition and study. Trans. Amer. Microsc. Soc. Menasha Wis. 40 1921 pp. 31-46.
- 27.—Baker, F. C. Pleistocene mollusca from Indiana and Ohio. J. Geol. Chicago Ill. 28 1920 pp. 439-457.
- 28.—Barbiche and Kieffer, J. J. Catalogue des mollusques vivants du Département de la Moselle. Bul. soc. hist. nat. Metz 19 1921 pp. 7-36.
- 29.—Barbieri, N. A. Étude anatomique sur la terminaison arétinienne du nerf optique dans la série animale. C.R. Acad. Sci. Paris 172 1921 pp. 1376-1379.
- 30.—Bárdarson, G. Sæ-liniridýr nýfundin við Ísland. Skýrsla Náttúruf. Reykjavík 1919 and 1920 1921 pp. 42-47.
- 31.—Bárdason, G. G. Fossile Skalafljeringer ved Breiddifjörður i Vest-Island. Geol. Förh. Stockholm 43 1921 pp. 323-380.
- 32.—Barnett, V. H. Geology of the Hound Creek District of the Great Falls coal field, Cascade County, Montana. Bul. U.S. Geol. Surv. Washington No. 641-H 1916 pp. 215-231.
- 32a.—Barthoux, J. L'Éocene des environs de Suez. Compte-Rendu Soc. Geol. France Paris 1920 1920 pp. 104-5.
- 33.—Bartsch, P. A new classification of the shipworms and descriptions of some new wood boring mollusks. Proc. Biol. Soc. Washington 34 1921 pp. 25-32.
- 34.—Bartsch, P. New marine mollusks from the West Coast of America. Proc. Biol. Soc. Washington 34 1921 pp. 34-40.
- 35.—Bartsch, P. The land mollusks of the genus *Obba* from the Islands of Bohol and Panglao. P. I. J. Washington Acad. Sci. 8 1918 pp. 16-17.
- 36.—Bartsch, P. A key to the Philippine subspecies of *Obba marginata* with notes on their distribution. J. Washington Acad. Sci. 8 1918 pp. 60-63.
- 37.—Bartsch, P. The land shells of the genus *Amphidromus* from the islands of the Palawan Passage. J. Washington Acad. Sci. 8 1918 pp. 361-367.
- 38.—Bartsch, P. A key to the subspecies of *Leptopoma nitidum* Sowerby of the Philippine Islands. J. Washington Acad. Sci. 8 pp. 532-535.
- 39.—Bartsch, P. Classification of the Philippine operculate land shells of the family *Helicinidae* with a synopsis of the species and subspecies of the genus *Geophorus*. J. Washington Acad. Sci. 8 1918 pp. 643-657.
- 40.—Bartsch, P. The *Caecidae* and other marine mollusks from the north-west coast of America. J. Washington Acad. Sci. 10 1920 pp. 565-572.
- 41.—Bataillon, C. Spermies couplées et hétérochromosome dans la lignée typique d'une Turritelle. C. R. soc. biol. Paris 84 1921 pp. 219-222.
- 42.—Baumberger, F. Ueber das Alter des Vaulroz- und Ralligsschichten. Eclogae Geol. Helvet. Lausanne 16 1920 pp. 137-8.
- 43.—Bavay, A. Sables littoraux des Iles de Loos (Guinée française). Description d'une espèce nouvelle du genre *Pedipes*. Bul. Mus. Hist. Nat. Paris 1920 1920 pp. 638-639.
- 44.—Beeston, H. The non-marine mollusca of Llandudno and district. J. Conch. Leeds 16 1921 pp. 138-144.
- Begemann, H. vide Jordan, H. J.
- 45.—Bell, A. British oysters: past and present. Essex Nat. Stratford 19 1920-1921 pp. 209-221 pls. xvii-xviii [Continued.]

46.—Bell, A. British oysters past and present. Supplementary notes. Essex Nat. Stratford 19 1921 pp. 300-302.

47.—Bender, G. Die Homomyen und Pleuromyen des Muschelkalkes der Heidelberger Gegend. Zs. D. geol. Ges. Berlin Abhandl. 73 1921 pp. 24-112 pls. i-iv.

48.—Berry, S. S. Some land snails of Shasta County, California. Nautilus Boston Mass. 35 1921 pp. 35-38.

49.—Berry, S. S. A review of the Cephalopod genera *Sepioloidea*, *Sepiadarium* and *Idiosepius*. Rec. S. Aust. Mus. Adelaide 1 1921 pp. 347-364.

50.—Berry, S. S. Notes on some Japanese Cephalopods—A review of Sasaki's "Albatross" Report. Ann. Mag. Nat. Hist. London 8 1921 pp. 351-352.

51.—Bestel, F. Compte rendu geologique. In Mailfait, P. Excursion du 29 juin 1904 à Baâlons et sur les Crêtes de Poix. Bull. Soc. Hist. Nat. Ardennes Charleville 11 1904 pp. 72-78.

52.—Bestel, F. Excursion du 7 mai 1906. Carrières et exploitations minières de l'Oxfordien à Viel-Saint-Remy et Neuvizy. Bull. Soc. Hist. Nat. Ardennes 12 1905 pp. 68-76.

53.—Bestel, F. Excursion du 22 avril 1906, de Vigne-aux-Bois à Donchery, par Bosséval et Montimont. Bull. Soc. Hist. Nat. Ardennes 13 1906 pp. 49-55.

54.—Bestel, F. Excursion du 16 juin 1906 aux environs des Grandes-Armoises. Bull. Soc. Hist. Nat. Ardennes 13 1906 pp. 57-64.

55.—Bestel, F. Excursion de juin 1908, à Novion-Porcien. Sables verts and phosphates de chaux. Bull. Soc. Hist. Nat. Ardennes 15 1908 pp. 123-134.

56.—Bettencourt, A. (and others). L'hôte intermédiaire du *Schistosomum haematobium* au Portugal. C. R. soc. biol. Paris 85 1921 pp. 1169-1170.

57.—Bispinghoff, W. Über die Anatomie von *Modiolarca trapezina* Lamarck nebst Bemerkungen zu ihrer Entwicklungsgeschichte. Jenaische Zs. Natw. 53 1914 pp. 341-388.

58.—Boettger, C. R. Meine Exkursion zur spanischen Kolonie Rio de Oro in Westafrika. Ber. Senckenb. Ges. Frankfurt a. M. 52 1921 pp. 72-84.

59.—Boettger, C. R. Über freilebende Hybriden der *Cepaea nemoralis* L. und *Cepaea hortensis* Müll. Zool. Jahrb. Jena Abt. f. Syst. 44 1921 pp. 297-336 3 pls.

60.—Bofill, A. and Haas, F. Estudi sobre la malacologia de les valls pirenaïques. Vall del Noguera-Ribagorçana. Pub. Junta Ci. Nat. Barcelona 3 1920 pp. 5-99 pls. i-iii. [German resumé at p. 65.]

61.—Bofill, A. and Haas, F. Estudi sobre la malacologia de les valls pirenaïques. Vall del Noguera Pallaresa. Pub. Junta Ci. Nat. Barcelona 3 1920 pp. 105-210 pls. i-iii. [German resumé at pp. 173 and 215.]

62.—Bofill i Poch, A. Report dels treballs efectuats en la secció malacologica des de 1^{er} de juliol de 1917 fins a 31 de desembre de 1918. Junta de Ci. Nat. Barcelona 3 1918 pp. 199-224.

63.—Böhm, J. Über Versteinerungen aus der Hohen Mark östlich Lembeck in Westfalen. Zs. D. Geol. Ges. Berlin B. 69 1917 (1918) pp. 194-195.

64.—Böhm, J. *Mya klinghardti* nov. sp. aus der tertiären diamantführenden Strandterrasse bei Bogenfels in Südwestafrika. Zs. D. Geol. Ges. Berlin B 71 1919 p. 78.

65.—Böhm, J. *Patella wünschmanni* nov. sp. und die Fauna des Ilsenburgmergels bei Wernigerode. Zs. D. Geol. Ges. Berlin B 71 1919 pp. 81-5.

66.—Bonarelli, G. Tierra del Fuego y sus turberas. An. Min. Agric. Etc. Buenos Aires 12 No. 3 1917 pp. 1-121.

67.—Bonnet, P. Sur la limite permio-triassique dans le géosynclinal arménien-himalayen. C. R. Acad. Sci. Paris 170 1920 pp. 1272-1274.

68.—Borner, L. Die Bodenfauna des St. Moritzer-Sees. Ein monographische Studie. Arch. Hydrobiol. Stuttgart 13 1921 pp. 209-281 pls. i-ii.

- 69.—Bottazzi, F. Ricerche sulla ghiandola salivare posteriore dei Cefalopodi. IV: Attività secretiva della ghiandola in varie condizioni sperimentali. Atti Acc. Lincei Roma 30 1921 pp. 9-12.
- 70.—Boury, E. de. Description de Scalidae nouveaux. Bull. Mus. Hist. Nat. Paris 1921 1921 pp. 233-235.
- 71.—Boutan, L. Le noyau des perles fines. C. R. Acad. Sci. Paris 173 1921 pp. 788-790.
- 72.—Boutan, L. L'origine du sac perlier et le mode de formations des perles fines. C. R. Acad. Sci. Paris 173 1921 pp. 1021-1023.
- 73.—Boycott, A. E. The land mollusca of the parish of Aldenham. Trans. Hertford. Nat. Hist. Soc. and F. Cl. 17 1921 pp. 220-245.
- 74.—Boycott, A. E. Anniversary address. Some factors in the distribution and dispersal of freshwater snails: (i) Transplantation experiments; (ii) advantages of parthenogenesis; (iii) canals. Trans. Hertford. Nat. Hist. Soc. and F. Cl. 17 1921 pp. 263-273.
- 75.—Boycott, A. E. Ecological notes. Proc. Malac. Soc. London 14 1921 pp. 128-130 167-172.
- 76.—Boycott, A. E. Notes on the distribution of British land and freshwater mollusca from the point of view of habitat and climate. Proc. Malac. Soc. London 14 1921 pp. 163-167 pls. v and vi.
- 77.—Boycott, A. E. Further observations on the occurrence of manganese in land and freshwater mollusca. Naturalist London 771 1921 pp. 135-138 209-211.
- 78.—Bretnall, R. W. Two Australian species of *Ditrypa*. Rec. Austr. Mus. Sydney 13 1921 pp. 155-156.
- 78a.—Brill, R. *Aucella bronni* schwäbischen Jura. Centralbl. Min. Stuttgart 1921 1921 pp. 379-381.
- 79.—Brüel, L. Artbildungs- und Variabilitätsstudien am Nervensystem von *Firoloida kowalevskyi* Vayss. (*desmaresti*). Zool. Jahrb. Jena Abt. f. allg. Zool. 38 1921 pp. 517-564 pls. xii xiii.
- 80.—Brun, P. de and Vedel, L. Liste paléontologique de l'Hettangien. Bull. Soc. Sci. Nat. Nîmes 40 1912-13 (1917) pp. 70-114 pls. i-ii.
- 81.—Brun, P. de and Vedel, L. Étude géologique des environs de St. Ambroix. Liste paléontologique de l'Hettangien (Suite). Bull. Soc. Sci. Nat. Nîmes 41 1914-1918 (1920) pp. 73-113.
- 82.—Buckman, S. S. Jurassic chronology: I.—Lias: Supplement I. West England strata. Q. J. Geol. Soc. London 76 1920 pp. 62-102.
- 83.—Bukowski, G. v. Beitrag zur Kenntnis der Conchylienfauna des marinen Aquitanien von Davaus in Karien (Kleinasien). Erster Teil. Sitzber. Ak. Wiss. Wien. Abt. i 125 1916 pp. 353-369 pl. i. Zweiter Teil 128 1919 pp. 95-114 pl. v.
- 84.—Bülow, E. v. Ein *Haplopleuroceras* von La Verpillière. Zs. D. Geol. Ges. Berlin B. 69 1917 pp. 85-90.
- 85.—Butterfield, W. R. Notes on the local fauna and flora for 1919. Hastings and E. Sussex Nat. 3 1920 pp. 125-135 [Mollusca at p. 134].
- 86.—Byne, L. St. G. On *Testacella maugei* in Cornwall. J. Roy. Inst. Cornwall 20 1915 pp. 93-94.
- 87.—Cabanès, G. Communications relatives à la distribution géographique de quelques espèces de mollusques. Bull. Soc. Sci. Nat. Nîmes 41 1914-1918 (1920) pp. 152-153.
- Cabanès, G. *vide* Margier, E.
- 88.—Calderwood, W. L. Sex-change in the native oyster. Nature London 108 1921 p. 272.
- 89.—Cardot, H. in Harlay, V. Excursion du 11 octobre 1908 dans la forêt de Froimont. Bull. Soc. Hist. Nat. Ardennes 15 1908 pp. 85-90 [Mollusca at p. 90].
- 90.—Cardot, H. Faune malacologique du Département des Ardennes. Bull. Soc. Hist. Nat. Ardennes 16 1909 pp. 49-104 pls. i-ii.
- 91.—Cardot, H. Reactions du cœur de quelques mollusques à l'excitation électrique. Bull. Soc. Hist. Nat. Ardennes 17 1910 pp. 8-9.

- 92.—Cardot, H. Action des solutions de Ringer hypertoniques sur le cœur isolé d'*Helix pomatia*. C. R. soc. biol. Paris 85 1921 pp. 813-816.
- 93.—Cardot in Mailfait, G. Excursion du 2 juillet 1905 à Pouru-Saint-Remy et à la frontière belge. Bull. Soc. Hist. Nat. Ardennes 12 1905 pp. 76-79 [Mollusca at p. 79].
- 94.—Cawston, F. G. Larval Trematodes from some freshwater snails. S. Afric. J. Nat. Hist. Pretoria 2 1920 pp. 115-117.
- 95.—Cawston, F. G. Some South African Cercariae. S. Afric. J. Nat. Hist. Pretoria 3 1921 pp. 199-204.
- 96.—Cawston, F. G. Experimental infestation of fresh-water snails. Trans. R. Soc. S. Africa Cape Town 9 1921 pp. 301-303.
- Caziot, E. *vide* Maury, C.
- 97.—Chadwick, H. C. A stranded cephalopod, *Illex coindetii*. Ann. Rep. Mar. Biol. Stat. Port Erin Liverpool 35 1921 p. 17.
- 98.—Chapman, F. The age of the Ironstone Beds of the Mornington Peninsula, as adduced from the marine fauna. Proc. R. Soc. Vict. Melbourne 34 1921 pp. 7-11.
- 99.—Chapman, F. The specific name of the Australian *Aturia* and its distribution. Proc. R. Soc. Vict. Melbourne 34 1921 pp. 12-16.
- 100.—Charpiat, R. Les *Batillaria* Benson des terrains tertiaires du Bassin de Paris. Bull. Mus. Hist. Nat. Paris 1921 1921 pp. 200-204.
- 100a.—Checchia-Rispoli, G. Di una nuova forma di pettinide del miocene medio. Boll. Soc. Geol. Ital. Rome 39 1920 (1921) pp. 167-170 1 pl.
- 101.—Christensen, S. De danske skalbærende Havsnegle (Gastropoder). Fauna og Flora København 1921 1921 pp. 91-96.
- 102.—Chudeau, R. Ammonites rapportées d'El Goléa par M. J. Surcouf. Bul. Mus. Hist. Nat. Paris 1920 1920 p. 679.
- 103.—Churchill, E. P. The oyster and the oyster industry of the Atlantic and Gulf Coasts. Rep. U.S. Com. Fish. Washington 1921 1921 (Appendix viii) pp. 5-51 pls. i-xxix.
- 104.—Clapp, G. H. Land shells of Chokloskee Key and Cape Sable, Florida. Nautilus Boston Mass. 34 1921 p. 108.
- 105.—Clark, F. W. and Wheeler, W. C. The inorganic constituents of marine invertebrates. Prof. Paprs. U.S. Geol. Surv. Washington 102 1917 pp. 1-56.
- 106.—Clark, H. W. and Stein, S. Glochidia in surface towings. Nautilus Boston Mass. 35 1921 pp. 16-20.
- 107.—Clarke, J. M. Early parasitism of the snails upon the crinoids. New York State Mus. Bul. Albany 221-222 1919 (1921) pp. 64-78.
- 108.—Cobbold, E. S. The Cambrian horizons of Comley (Shropshire) and their *Brachiopoda*, *Pteropoda*, *Gastropoda*, &c. G. J. Geol. Soc. London 76 1921 pp. 325-386 pls. xxi-xxiv.
- 109.—Cockerell, T. D. A. The helicoid group *Disculella* Pilsbry. Nautilus Boston Mass. 35 1921 pp. 12-14.
- 110.—Cockerell, T. D. A. Miscellaneous notes on land mollusca of the Madeira Is. Nautilus Boston Mass. 35 1921 pp. 39-40.
- 111.—Cockerell, T. D. A. The land mollusks of the Belgian Congo. Nautilus Boston Mass. 34 1921 pp. 102-104.
- 112.—Cockerell, T. D. A. Notes on *Craspedopoma lucidum*, Lowe and other Madeira snails. Nautilus Boston Mass. 34 1921 pp. 113-114.
- 113.—Cockerell, T. D. A. The genus *Plebecula* Lowe. Nautilus Boston Mass. 34 1921 pp. 133-136.
- 114.—Cockerell, T. D. A. The anatomy and relationships of *Helix subplicata*, Sowerby. Proc. Malac. Soc. London 14 1921 pp. 191-195.
- 115.—Cockerell, T. D. A. The dispersal of snails by birds. Nature London 108 1921 pp. 496-497.
- 116.—Collip, J. B. A further study of the respiratory processes in *Mya arenaria* and other marine mollusca. J. Biol. Chem. New York (Baltimore) 49 1921 pp. 297-310.

117.—Colosi, G. Diagnosi di Vaginulidi (Gasteropodi terrestri). Atti Soc. Ital. Sc. Nat. Pavia 60 1921 pp. 1-7 [? Original pagination].

118.—Colosi, G. Sul sistema dei gasteropodi. Boll. Mus. Zool. Anat. comp. Torino 36 1921 pp. 1-7.

119.—Colosi, G. La realizzazione delle forme nel sistema dei gasteropodi. Natura Milano 12 1921 pp. 41-49.

120.—Cooke, A. H. Evolution in the molluscan radula. J. Conch. Leeds 16 1921 pp. 145-150.

Cooke, C. M. *vide* Pilsbry, H. A.

121.—Cooke, C. W. New names for West Indian Tertiary Pectens. Nautilus Boston Mass. 34 1921 p. 137.

122.—Cooke, C. W. *Orthaulax*, a Tertiary Guide Fossil. Prof. Paprs. U.S. Geol. Surv. Washington 129-B 1921 pp. 23-37 4 pls.

122a.—Cossmann, M. Un gastropode du Bajocien de Dampierre (M.-et-M.). Compte-Rendu soc. géol. France Paris 1920 1920 p. 100.

122b.—Cossmann, M. Rectifications de nomenclature. Rev. crit. paléozool. Paris 25 1921 pp. 79-80.

122c.—Cossmann, M. Essais de Paléonconchologie comparée. Onzième livraison. Ouvrage couronné par l'Académie des Sciences (Prix Fontaines, 1911). Paris, chez l'auteur 1918 1918 pp. 1-388 11 pls.

Cossmann, M. *vide* Lambert.

123.—Couffon, O. Deuxième note sur le calcaire du Grip. Bull. Soc. Étude Sci. Angers N.S. 50 1920 (1921) pp. 19-27.

123a.—Couffon, O. Sur la faune du Gothlandien de la Meignane près d'Angers (Maine-et-Loire). Bull. soc. géol. Paris 18 1918 (1919) pp. 214-16.

124.—Cousin, G. Sur les variations individuelles de *Psiloceras planorbis* Sow. C. R. Acad. Sci. Paris 172 1921 pp. 1369-1372.

125.—Crick, G. C. On *Nautilus pseudotruncatus* n. sp., from the Liassic rocks of England. Proc. Cotteswold Cl. 20 1921 pp. 245-247.

126.—Crick, G. C. On some dibranchiate Cephalopoda from the upper Lias of Gloucestershire. Proc. Cotteswold Cl. 20 1921 pp. 249-256 pls. A and B.

127.—Crozier, W. J. Notes on some problems of adaptation : 5. The phototropism of *Lenia*. Biol. Bull. Wood's Holl Mass. 41 1921 pp. 102-105.

128.—Currie, E. D. Fossils from Western Persia. Geol. Mag. London 58 1921 pp. 529-537.

128a.—Dalimier, H. Note sur une Néritine des sables coquillières éocènes de la Close-en-Campbon (Loire-Inférieure). Compte-Rendu soc. géol. France Paris 1917 1917 p. 63.

129.—Dall, W. H. A new *Chiton* from Southern Brazil. Nautilus Boston Mass. 35 1921 pp. 4-5.

130.—Dall, W. H. Summary of the marine shell-bearing mollusks of the Northwest Coast of America from San Diego, California, to the Polar Sea, mostly contained in the collection of the United States National Museum with illustrations of hitherto unfigured species. U.S. Nation. Mus. Bull. Washington D.C. 112 1921 pp. 1-217 pls. i-xxi.

131.—Dall, W. H. Two new pliocene Pectens from Nome, Alaska. Nautilus Boston Mass. 34 1921 pp. 76-77.

132.—Dall, W. H. Species named in the Portland Catalogue : I, American. Nautilus Boston Mass. 34 1921 pp. 97-100.

133.—Dall, W. H. Nomenclatorial notes. Nautilus Boston Mass. 35 1921 pp. 49-50.

134.—Dall, W. H. Molluscan species named in the Portland Catalogue, 1786, Part ii, foreign species. Nautilus Boston Mass. 34 1921 pp. 124-132.

135.—Dall, W. H. New Fossil invertebrates from San Quentin Bay, Lower California. West American Scientist 19 1921 pp. 17-18.

136.—Dall, W. H. New shells from the Pliocene or early Pleistocene of San Quentin Bay, Lower California. West American Scientist 19 1921 pp. 21-23.

- 137.—Dall, W. H. On the relations of the sectional groups of *Bulimulus* of the subgenus *Naesiota* Albers. J. Washington Acad. Sci. 10 1920 pp. 117-122.
- 137a.—Dalloni, M. Le Crétacé inférieur dans la vallée de la Tafna. Compte-Rendu soc. géol. France Paris 1919 1919 pp. 149-150.
- 138.—Daniel, R. J. Seasonal changes in the chemical composition of the mussel (*Mytilus edulis*). Proc. and Trans. Liverpool Biol. Soc. 35 1921 pp. 146-156.
- 139.—Dautzenberg, P. Contribution à la faune malacologique du Cameroun. Rev. Zool. Africaine Bruxelles 9 1921 pp. 87-192 pl. vi.
- 140.—Dautzenberg, P. Description d'une espèce nouvelle de *Trivia*. J. conchyliol. Paris 65 1921 pp. 330-331.
- 141.—Dautzenberg, P. Cas tératologiques chez quelques gastéropodes. J. conchyliol. Paris 65 1921 pp. 332-334.
- 142.—Dautzenberg, P. Description d'une nouvelle espèce d'*Oleacina* provenant du Chiriqui. J. conchyliol. Paris 65 1921 pp. 327-329.
- Debeaupius, M. *vide* Nicolesco, C.
- 143.—De la Torre, C. and Henderson, J. B. New mollusks from Camaguey and Santa Clara Provinces, Cuba. Proc. U.S. Nation. Mus. Washington D.C. 59 1921 pp. 247-267.
- 144.—Déperet, C. and Fallot, P. Sur l'âge des formations à lignite de l'île de Majorque. C. R. Acad. Sci. Paris 172 1921 pp. 790-795.
- 145.—Déperet, C. and Solignac, M. Sur le Sahélien de la Tunisie septentrionale. C. R. Acad. Sci. Paris 172 1921 pp. 1557-1561.
- 146.—Diener, C. Ammoniten aus der Untertrias von Madagascar. Sitzber. Ak. Wiss. Wien Abt. i 123 1914 pp. 911-922 pl. i.
- 147.—Diener, C. Über die Altersstellung der untersten Gondwana-Stufe in ihren Beziehungen zu den marinen Sedimenten des Himalaya. Sitzber. Ak. Wiss. Wien. Abt. i 123 1914 pp. 669-677.
- 148.—Diener, C. Untersuchungen über die Wohnkammerlänge als Grundlage einer natürlichen Systematik der Ammoniten. Sitzber. Ak. Wiss. Wien. Abt. i 125 1916 pp. 253-309.
- 149.—Diener, C. Die obertriadische Ammonitenfauna der neusibirischen Insel, Kotelnj. Sitzber. Ak. Wiss. Wien. Abt. i 125 1916 pp. 439-463 pl. i.
- 150.—Diener, C. Über die Beziehungen zwischen den Belemniten-gattungen *Aulacoceras* Haw., *Asteroceras* Tell und *Dictyoconites* Mojs. Sitzber. Ak. Wiss. Wien. Abt. i 126 1917 pp. 495-513.
- 151.—Diener, C. Die marinen Reiche der Triasperiode. Denkschr. Ak. Wiss. Wien. 92 1916 pp. 405-549.
- 152.—Diener, C. Über Ammoniten mit Adventivloben. Denkschr. Ak. Wiss. Wien. 93 1917 pp. 139-199 pls. i-ii.
- 153.—Diener, C. Nachträge zur Kenntnis der Nautiloideenfauna der Hallstätter Kalke. Denkschr. Ak. Wiss. Wien. 96 1919 pp. 751-778 pls. i-iii.
- 154.—Diener, C. Neue *Ceratitoides* aus den Hallstätter Kalken des Salz-kammgutes. Sitzber. Ak. Wiss. Wien. Abth. i 129 1920 pp. 513-537 1 pl.
- Dinitch, I. *vide* Kilian, W.
- 155.—Doello-Jurado, M. Una nueva especie de "*Eupera*" del Rio de la Plata. Physis Buenos Aires 5 1921 pp. 72-75.
- 155a.—Dollfus, G.—F. Trois espèces nouvelles ou mal connues de Cérithes tertiaires. Bull. soc. géol. Paris 18 1918 (1919) pp. 277-293 2 pls.
- 155b.—Dollfus, G. L'Oligocène de l'île Célèbes. Compte-Rendu soc. géol. France Paris 1919 1919 p. 13.
- 155c.—Dollfus, G.—F. Malacologie du gisement fossilifère du Pont-de-Gail, près de Saint-Clément (Cantal). Bull. soc. géol. Paris 20 1920 pp. 37-47 77 1 pl.
- 156.—Dollfus, R. P. Résumé de nos principales connaissances pratiques sur les maladies et les ennemis de l'huitre. Office Sci. Tech. Pêches Maritimes Notes and Mem. 7 1921 pp. 1-46.

- 157.—Dollfus, R. Sur les cellules a mucus de l'huître (*Ostrea edulis* L.) et la mycose de Pettit. C. R. soc. biol. Paris **85** 1921 pp. 449-452.
- 158.—Douvillé, H. Une faune saumâtre au sommet du crétacé inférieur, pres de Bayonne. C. R. Acad. Sci. Paris **172** 1921 pp. 630-631.
- 159.—Douvillé, H. Mélanges paléontologiques: Genre *Eovasum*, *Glauconiidae*, *Pleuroceratidae*, *Pirenidae*, genre *Itruvia*. J. conchyliol. Paris **66** 1921 pp. 1-18 pl. i.
- 159a.—Douvillé, H. Découverte du Dévonien au Tafilalet par le commandant Poirmeur. Compte-Rendu soc. géol. France Paris **1919** 1919 p. 21.
- 159b.—Douvillé, H. Le Lutétien inférieur à l'est de l'isthme de Suez. Compte-Rendu soc. géol. France Paris **1920** 1920 pp. 45-6.
- 160.—Dubois, G. Étude géographique, géologique, et agronomique du Mont de Watten. Ann. Soc. Géol. Lille **45** 1920 1921 pp. 56-64.
- 161.—Dybowski, B. und Grochmalicki, J. Studien über die turmförmigen Schnecken des Baikalsees und des Kaspimeeres (Turribaicaliinae—Turricaspiinae). Abh. Zool.-Bot. Ges. Wien. **9** 1917 pp. 1-55 pls. i-iv.
- 162.—Eales, N. B. L. M. B. C. Memoirs No. xxiv *Aplysia*. Proc. and Trans. Liverpool Biol. Soc. **35** 1921 pp. 183-266 pls. i-vii.
- 163.—Ebersbach, A. Zur anatomie von *Cirroteuthis umbellata* Fischer und *Stauroteuthis* sp. Zs. wiss. Zool. Leipzig **113** 1915 pp. 361-483 pls. viii-ix.
- 164.—Eck, O. Die Cephalopoden der Schweinfurthschen Sammlung aus der Oberen Kreide Ägyptens. Zs. D. Geol. Ges. Berlin **A 66** 1914 pp. 179-216 11 plates.
- 165.—Eisemann, H. Untersuchungen am Gastropodenauge. Zool. Anz. Leipzig **51** 1920 pp. 143-158.
- 166.—Elliott, W. T. Pearl in *Littorina littorea*. L. J. Conch. Leeds **16** 1921 p. 233.
- 167.—Essenberg, C. The Pteropod *Desmopterus pacificus* sp. nov. Univ. Cal. Pub. Zool. Berkeley **19** 1919 pp. 85-88.
- 168.—F., H. C. George Brettingham Sowerby. Nautilus Boston Mass. **34** 1921 pp. 137-138.
- 169.—Fabiani, R. Sul Terziario dell' Alta Val di Non (Trentino). Atti Acc. Sci. Padova **10** 1917-19 1919 pp. 117-123.
- 170.—Fabiani, R. Studio geologico della regione di S. Severino Marche. Atti Acc. ven.-trent. Padova **11** 1920 (1921) pp. 26-42.
- 171.—Faideau, F. Les mollusques comestibles des côtes de l'Aunis. Ann. Soc. Sci. Nat. Charente-Inf. La Rochelle **38** 1921 pp. 21-57.
- 172.—Fallot, P. and Termier, H. Sur l'extension verticale du facies marneux à céphalopodes pyriteux dans l'île d'Ibiza. C. R. Acad. Sci. Paris **173** 1921 pp. 91-94.
- Fallot, P. vide Déperet, C.
- 173.—Fischer, H. Note sur des coquilles subfossiles de Gibraltar. J. conchyliol. Paris **65** 1921 p. 319.
- 174.—Fischer, H. Monstruosités des tentacules chez *Buccinum undatum* L. J. conchyliol. Paris **66** 1921 pp. 19-20.
- 174a.—Fischer, P. J. Eine Pliocän-fauna von Seran (Molukken). Centralbl. Min. Stuttgart **1921** 1921 pp. 242-251 278-286.
- 175.—Flössner, W. Die Schalenstruktur von *Helix pomatia*. Zs. wiss. Zool. Leipzig **113** 1915 pp. 546-577.
- 176.—Foerste, A. F. The identification of Trenton a lower geological horizon. Bul. Geol. Surv. Kentucky Frankfort Ky. Ser. iv. **1** 1913 pp. 365-376.
- 176a.—Fossa-Mancini, E. Catalogo dei fossili dell' Appennino centrale conservati nel museo di geologia dell' Università di Pisa, Parte I. Palaeontogr. Italica Pisa **24** 1918 pp. 129-145 1 pl.
- 177.—Foyles, E. J. The geology about Mills Springs, Monticello Quadrangle, Kentucky. Amer. Mus. Novit. New York No. **11** 1921 pp. 1-10.

178.—Franke, F. Die Fauna des Emschers bei Dortmund. Z. D. Geol. Ges. Berlin B. 66 1914 pp. 214–227.

178a.—Frankenberger, Z. Über einige kaukasische Heliciden. Arch. Natg. Berlin Abt. A. 83 pt. 2 1919 pp. 67–77 6 figs.

179.—Franz, V. Über Hautlichtsinn, Augen- und Fühlerfunktionen bei Stylommatophoren. Zool. Jahrb. Jena Abt. f. allg. Zool. 38 1921 pp. 171–202.

180.—Freitag, C. Die Niere von *Helix pomatia*. Zs. wiss. Zool. Leipzig 115 1916 pp. 586–649.

181.—Frentzen, K. Muschelschalen mit erhaltener Farbe aus dem Malm Schwabens. Centralbl. Min. Stuttgart 1920 1920 pp. 50–52.

181a.—Fritzsche, C. H. Neue Kreidefaunen aus Südamerika (Vorläufige Mitteilung). Centralbl. Min. Stuttgart 1921 1921 pp. 272–277.

181b.—Fucini, A. Il Lias superiore di Taormina e i suoi fossili. Palaeontogr. Italica Pisa 25 1919 pp. 173–192 1 pl.

182.—Fuller, A. B. Collecting mollusks on a beam-trawler. Nautilus Boston Mass. 35 1921 pp. 29–32.

183.—Fulton, H. C. Obituary notice: George Brettingham Sowerby. J. Conch. Leeds 16 1921 pp. 213–214.

184.—Fulton, H. C. On new species of *Hemiplecta* and *Xesta* from the Xulla (= Sula or Sula) Islands, with notes on other species from the same locality. Proc. Malac. Soc. London 14 1921 pp. 148–150.

Gabriel, C. J. vide Gatliff, J. H.

185.—Gardiner, C. I. The Silurian rocks of May Hill. With an appendix on two Trilobites by Dr. F. R. Cowper Reed, M.A., D.Sc. Proc. Cotteswold Cl. 20 1921 pp. 185–222.

186.—Gatenby, J. B. Hybridity and the evolution of species. Nature London 108 1921 p. 469.

187.—Gatliff, J. H. and Gabriel, C. J. Description of a new *Phasianella* (*P. tomlini*) from Western Australia. Proc. Malac. Soc. London 14 1921 p. 173.

188.—Germain, L. Paléontologie de Madagascar. ix.—Mollusques quaternaires terrestres et fluviatiles. Ann. paléont. Paris 10 1921 pp. 21–36 pls. iii–vii (i–v).

188a.—Gerth, H. Fauna und Gliederung des Neocoms in der argentinischen Kordillere. Centralbl. Min. Stuttgart 1921 1921 pp. 112–119 140–8.

189.—Geyer, D. Die Mollusken des Urwaldes von Bialowies. Abh. Senckenb. Ges. Frankfurt a. M. 37 1920 pp. 37–67 pl. iii.

189a.—Gillet, S. Sur la faune de Lamellibranches des gisements néocomiens pyriteux. Bull. soc. géol. Paris 19 1919 (1920) pp. 285–288.

189b.—Gillet, S. Sur les Lamellibranches éocénacées et albiens du Haut-Atlas marocain. Compte-Rendu soc. géol. France Paris 1918 1918 pp. 117–119.

190.—Gilsen, V. Note sur quelques espèces de mollusques marins habitant la côte belge ou son voisinage. Ann. Soc. roy. zool. malac. Bruxelles 43 1913 pp. 257–258.

191.—Ginzberger, A. Beiträge zur Naturgeschichte der Scoglien und kleineren Inseln Süddalmatiens. Ergebnisse von zwei im mai und juni 1911 und im juli 1914 mit Unterstützung aus der Erbschaft Treittl ausgeführten Reisen. Denkschr. Ak. Wiss. Wien. 92 1916 pp. 261–404 pls. i–vii (Mollusca at p. 397 by Sturany, R.).

192.—Glockauer, A. Zur Anatomie und Histologie des Cephalopodenauges. Zs. wiss. Zool. Leipzig 113 1915 pp. 325–360.

Gobert, E. vide Nicolle, C.

193.—Goodrich, C. River barriers to aquatic animals. Nautilus Boston Mass. 35 1921 pp. 1–4.

194.—Goodrich, C. *Anculosae* North of the Alabama drainage. Nautilus Boston Mass. 35 1921 pp. 9–12.

195.—Goodrich, C. Something about *Angitrema*. Nautilus Boston Mass. 35 1921 pp. 58–59.

196.—Gortani, M. Ossevizioni sulle impronte medusoidi del Flysch (*Lorenzina* e *Atollites*). Riv. ital. paleont. Perugia 26 1921 pp. 56–72 pl. ii.

197.—Gottschick, F. Die Umbildung der Süßwasserschnecken des Tertiärbeckens von Steinheim a. A. unter dem Einflusse heisser Quellen. Jenaische Zs. Natw. 56 1920 pp. 155–214 pls. i–iii.

- 198.—Grabau, A. W. Significance of the Sherburne Sandstone in upper devonic stratigraphy. Bul. Geol. Soc. Amer. New York 30 1919 pp. 423-470.
- 198a.—Greco, B. Fauna cretaceo dall' Egitto raccolta dal Figari Bey. Parte terza, fasc. 2. Palaeontogr. Italica Pisa 24 1918 pp. 1-58 5 pls.
- 199.—Greger, D. K. The Devonian of Central Missouri (ii). Amer. J. Sci. New Haven Conn. pp. 265-266.
- 200.—Greger, D. K. The Devonian of Central Missouri (iii). The Cooper Limestone. Amer. J. Sci. New Haven Conn. 50 1920 pp. 20-24.
- 201.—Grier, N. M. Notes on the Naiad Fauna of the Upper Mississippi River. Nautilus Boston Mass. 34 1921 pp. 80-81.
- 202.—Grimpe, G. Teuthologische Mitteilungen. Zool. Anz. Leipzig 51 1920 pp. 205-214.
- 203.—Grimpe, G. Teuthologische Mitteilungen. v. Zwei neue Cirraten-Arten. Zool. Anz. 51 1920 pp. 230-243.
- Grimpe, G. vide Hoffmann, F.
- Grochmaliki, J. vide Dybowski, B.
- 204.—Groëber, P. Estratigrafía del Dogger en la Republica Argentina. Estudio sentético comparativo. An. Min. Agric. &c. Buenos Aires 18 1918 pp. 5-81.
- 204a.—Grossouvre, A. de. Bajocien-Bathonien dans la Nièvre. Bull. soc. géol. Paris 18 1918 (1919) pp. 337-459 4 pls.
- 205.—Gruvel, A. Les huitres perlières sur la côte de Madagascar. C. R. Acad. Sci. Paris 173 1921 pp. 1128-1130.
- 206.—Gude, G. K. The fauna of British India including Ceylon and Burma . . . Mollusca.—iii. Land Operculates (*Cyclophoridae*, *Truncatellidae*, *Assimineidae*, *Helicinidae*). London Taylor & Francis 1921 pp. 1-386.
- 207.—Gude, G. K. Presidential address. Changes in the classification of Helices during a quarter of a century. Proc. Malac. Soc. London 14 1921 pp. 151-160.
- 208.—Gude, G. K. and Woodward, B. B. Some emendations of their recent paper "On *Helicella*, Férussac." Ann. Mag. Nat. Hist. London 8 1921 pp. 624-626.
- 209.—Gude, G. K. and Woodward, B. B. On *Helicella*, Férussac. Proc. Malac. Soc. London 14 1921 pp. 174-190.
- 210.—Guiraud, H. Notes géologiques sur les environs d'Anjac. Bull. Soc. Sci. Nat. Nîmes 40 1912-13 (1917) pp. 32-38.
- 211.—Haas, F. Seltene Schnecken aus Flussanspülungen. Ber. Senckenb. Ges. Frankfurt a. M. 51 1921 pp. 10-13.
- Haas, F. vide Bofill, A.
- 212.—Hanna, G. D. *Modiolus demissus* Dillwyn, in San Francisco Bay. Nautilus Boston Mass. 34 1921 pp. 91-92.
- 213.—Hanna, G. D. *Epiphragmophora fidelis* (Gray) near San Francisco Bay. Nautilus Boston Mass. 35 1921 pp. 34-35.
- 214.—Harmer, F. W. The Pliocene mollusca of Great Britain, being supplementary to S. V. Wood's Monograph of the Crag Mollusca. Palaeont. Soc. London for 1919 vol. ii pt. ii. 1921 pp. 653-704 pls. liii-lvi.
- 215.—Harvey, E. N. The chemistry of light production in luminous organisms. Dept. mar. Biol. Carnegie Inst. 11 1917 pp. 173-234 [Mollusca at pp. 222-223].
- 215a.—Hauf, B. Untersuchung der Fossilfundstätten von Holzmaden in Posidonienschiefer des Oberen Lias Württembergs Bivalven Gastropoden, Cephalopoden. Palaeontographica Stuttgart 64 1921 pp. 19-29.
- 215b.—Hayasaka, I. Permian Ammonites from the Tao-chung Mines, prov. An-hui, China. J. Geol. Soc. Tokyo 27 1920 p. (4)81.
- 216.—Haynes, T. H. Notes on pearl formation and Japanese culture pearls. Proc. Malac. Soc. London 14 1921 pp. 221-226 pls. vii viii.
- 217.—Hede, J. E. Om några nya fynd av graptoliter inom Gottlands Silur och deras Betydelse för Stratigrafien. Sveriges Geol. Unders. Årsbok Ser. C. No. 291 Årsbok 12 1918 No. 8 1919 pp. 3-31.

- 218.—Hedley, C. A revision of the Australian *Tridacna*. Rec. Austr. Mus. Sydney 13 1921 pp. 163-172.
- 219.—Helvestine, F. Amitosis in the ciliated cells of the gill filaments of *Cyclas*. J. Morph. Philadelphia 36 1921 pp. 103-113 [Abstr. in Spanish p. 102].
- 220.—Henderson, J. *Oreohelix maculata*, new species. Nautilus Boston Mass. 35 1921 pp. 14-16.
- 221.—Henderson, J. Notes to accompany a geological map of the Cheviot District. New Zealand Journ. Sci. Tech. Wellington N.Z. 4 1921 pp. 24-30.
- Henderson, J. B. *vide* De la Torre, C.
- 222.—Hennig, E. Die Fauna der deutsch-ostafrikanischen Urgonfazies. Zs. D. geol. Ges. Berlin Abhandl. 68 1916 pp. 441-476.
- 223.—Herbst, R. Beiträge zur Conchylienfauna von Südhannover. Jahresber. nathist. Ges. (Abhandl.) Hannover 62-68 1919 pp. 1-21.
- 224.—Herdman, E. C. Nudibranchs from Port Erin. Ann. Rep. Mar. Biol. Sta. Port Erin Liverpool 35 1921 p. 22.
- 225.—Hind, W. On some carboniferous ammonoids new to English rocks. Proc. Yorks. Geol. Soc. Halifax new ser. 19 1919-20 pp. 359-362 pls. xlii-xliii.
- 226.—Hoffmann, F. Beiträge zur Anatomie und Histologie von *Tagelus lombeyi* (Lamarck). Jenaische Zs. Natw. 52 1914 pp. 521-566.
- 226a.—Hoffmann, H. und Grimpe, G. Über die Postembryonalentwicklung von *Histioteuthis* und über ihre sogenannten "Endorgane." Arch. Natg. Berlin Abt. A 87 (12) 1921 (1922) pp. 179-219 9 figs.
- 226b.—Hollande, D. Nouvelle note sur le Pliocène de Corse. Compte-Rendu soc. géol. France Paris 1920 1920 p. 118.
- 227.—Holtedahl, O. On the Paleozoic series of Bear Island, especially on the Heclahook system. Norsk. Geol. Tidsskr. Christiania 5 1919 pp. 121-148 4 plates.
- 227a.—Holtedahl, O. Notes on the Ordovician fossils from Bear Island collected during the Swedish expeditions of 1898 and 1899. Norsk. Geol. Tidsskr. Christiania 5 1918 pp. 79-94 3 pls.
- 228.—Hopwood, A. T. Systematic position of *Conus marchionatus* Hinds. J. Conch. Leeds 16 1921 p. 239.
- 229.—Hopwood, A. T. Note on *Conus lineatus* Solander and *Conus lineatus* Brug. J. Conch. Leeds 16 1921 p. 151.
- 230.—Hopwood, A. T. Notes on some mollusca from Morecambe Bay. Lancs. and Cheshire Nat. 13 1921 pp. 235-237 243-249.
- 231.—Horsley, J. W. Notes on Kentish mollusca. J. Conch. Leeds 16 1921 p. 227.
- 232.—Hoyeremann, Th. Untersuchungen über die Entwicklung der Lobenlinie von *Leioceras opalinum*. Rein. Zs. D. Geol. Ges. Berlin B 71 1919 (1920) pp. 160-4.
- 232a.—Huber, A. Die marmeliebender Tierwelt der weiter Umgebung Basels. Arch. Natg. Berlin Abt. A. 82 pt. 7 1918 pp. 1-120 (Mollusca pp. 69-80).
- 233.—Huggins, H. C. *Helix aspersa* monstr. *sinistrum* near Sittingbourne. J. Conch. Leeds 16 1921 p. 155.
- 234.—Huggins, H. C. *Limax cinereoniger* in Kent. J. Conch. Leeds 16 1921 p. 214.
- 235.—Hume, W. F. (and others). The Jurassic and Lower Cretaceous rocks of Northern Sinai. Geol. Mag. London 58 1921 pp. 339-347.
- 236.—Hurst, C. P. Malacological report. Rep. Marlboro. Soc. 68 1919 (1920) pp. 25-26.
- 237.—Ihering, H. von. Dos especies argentinas de Mycetopoda (nota preliminar). Physis, Buenos Aires 5 1921 pp. 75-76.
- 238.—Ihering, H. von. Nautilidos del Terciario de Chile y de la Argentina (nota preliminar). Physis, Buenos Aires 5 1921 p. 76.
- 238a.—Ihering, H. v. Las especies de *Ampullaria* de la Argentina y la historia del Rio de La Plata. Prim. Réunion. Nac. soc. arg. cienc. Nat. Buenos Aires 1919 1919 pp. 229-350 2 pls.

- 239.—Iredale, T. Unpublished plates of Thomas Martyn, Conchologist. Proc. Malac. Soc. London 14 1921 pp. 131-134.
- 240.—Iredale, T. Molluscan nomenclatural problems and solutions. Proc. Malac. Soc. London 14 1921 pp. 198-208.
- 241.—J., C. W. Oil injuring oysters. Nautilus Boston Mass. 35 1921 p. 28.
- 242.—J., C. W. The Hinkley and Nason collections. Nautilus Boston Mass. 35 1921 p. 62.
- 243.—J., C. W. *Crepidula fornicata* in the British Isles. Nautilus Boston Mass. 35 1921 pp. 62-64.
- 244.—Jackson, J. W. Mollusca. Report on the non-marine mollusca for 1920. Lancs. and Cheshire Nat. 13 1921 pp. 213-214.
- 245.—Jacot, A. P. Some marine molluscan shells of Beaufort and vicinity. J. Elisha Mitchell Sci. Soc. Chapel Hill N.C. 36 1921 pp. 129-145 pls. xi-xiii.
- 246.—Jaffé, G. Die Pericardialdrüse von *Anodonta cellensis* (Schröt.). Zs. wiss. Zool. Leipzig 118 1920 pp. 448-479.
- 247.—Jaffé, G. Entwicklung der Pericardialdrüse von *Anodonta cellensis* (Schröt.). Zs. wiss. Zool. Leipzig 119 1921 pp. 67-78.
- 248.—Jennings, F. B. *Clausilia biplicata* Mont. in Essex. J. Conch. Leeds 16 1921 p. 144.
- 249.—Jentzsch, A. Cyrenenfund aus der Provinz Posen. Zs. D. Geol. Ges. Berlin B 71 1919 pp. 18-19.
- 250.—Johnstone, J. The oyster parasite, *Bucephalus haimeanus*. Ann. Rep. Mar. Biol. Sta. Port Erin Liverpool 35 1921 p. 22.
- 251.—Jordan, H. J. und Begemann, H. Über die Bedeutung des Darmes von *Helix pomatia*. (Ein Beitrag zur vergleichenden und allgemeinen Physiologie der Resorption). Zool. Jahrb. Jena Abt. f. allg. Zool. 38 1921 pp. 565-582.
- 252.—Joubin, L. D. P. Oehlert. J. conchyliol. Paris 66 1921 pp. 67-74.
- 253.—Kalkschmid, P. J. Die Heteropoden der "Najade"-Expeditionen. Vorläufige Mitteilung im Auftrage des Vereines zur Förderung der naturwissenschaftlichen Erforschung der Adria in Wien. Sitzber. Ak. Wiss. Wien. Abt. i 123 1914 pp. 1157-1176.
- 254.—Kegel, W. Über Diluvial-Geschiebe mit Amaltheen. Z. D. Geol. Ges. Berlin B 67 1915 pp. 269-271.
- 255.—Keilin, D. Supplementary account of the dipterous larvae feeding upon molluscs. Parasitol. Cambridge 13 1921 pp. 180-183.
- 256.—Kendall, C. E. Y. The mollusca of Oundle. J. Conch. Leeds 16 1921 pp. 240-244.
- 257.—Kennard, A. S. and Woodward, B. B. in Marr, J. E. The non-marine mollusca of the Cambridgeshire gravels. Q. J. Geol. Soc. London 75 1920 pp. 229-241.
- 258.—Kennard, A. S. and Woodward, B. B. in Trechmann, C. T. Description of the non-marine mollusca. Q. J. Geol. Soc. London 75 1920 p. 200.
- Kieffer, J. J. vide Barbiche.
- 258a.—Kilian, W. and Dinitch, I. Sur des fossiles remaniés dans le Crétacé supérieur de Sasonage (Isère). Compte-Rendu soc. géol. France Paris 1920 1920 pp. 32-3.
- 259.—Kjerschow-Agersborg, K. P. On the status of *Chioraeba* (Gould). Nautilus Boston Mass. 35 1921 pp. 50-57.
- 260.—Kofoid, C. A. Biological phase. The marine borers of the San Francisco Bay region. Rep. San Francisco Bay Marine Piling Surv. San Francisco 1921 1921 pp. 23-61.
- 261.—Kraatz, W. C. A preliminary general survey of the macrofauna of Mirror Lake on the Ohio State University Campus. Ohio J. Sci. Columbus 21 1921 pp. 137-182 [Mollusca at pp. 151-153].
- 261a.—Krausse, A. Nacktschneckenfrass an Buchenkeimpflanzen. Arch. Natg. Berlin Abt. A 82 3 1916 1917 pp. 44-6 1 text-fig.

- 262.—Kretzschmar, C. Das Nervensystem und osphradiumartige Sinnesorgan der Cyclophoriden. (Fauna et Anatomia ceylanica, Nr. 4.) Jenaische Zs. Natw. 56 1919 pp. 1-84 pls. i-iv.
- 263.—Kugler, H. Geologie des Sangir-Batangharigebietes (Mittel-Sumatra). Verh. Geol. Mij. Genoots. 's-Gravenhage 5 1921 pp. 135-201.
- 264.—Kuhlmann, L. Über die untere Kreide im westlichen Osning. Zs. D. Geol. Ges. Berlin B 66 1914 pp. 328-330.
- 265.—Kunze, H. Zur Topographie und Histologie des Centralnervensystems von *Helix pomatia*. L. Zs. wiss. Zool. Leipzig 118 1919 pp. 25-203.
- 266.—Labbé, A. Sur les fecondations hétérogenes. C. R. Acad. Sci. Paris 173 1921 pp. 942-945.
- Ladreyt, F. *vide* Turchini, J.
- 266a.—Lambert, J. and Cossmann, M. Rectifications de nomenclature. Rev. crit. paléozool. Paris 24 1920 pp. 174-5.
- 267.—Lameere, A. La faune du môle de Zeebrugge. Ann. Soc. roy. zool. malac. Bruxelles 43 1913 pp. 259-260.
- 268.—Lamy, E. Les théories explicatives de la perforation par les mollusques lithophages et xylophages. Rev. Sci. Paris 59 1921 pp. 423-432.
- 269.—Lamy, E. Sur quelques pholades figurées par Valenciennes. Bull. Mus. Hist. Nat. Paris 1921 1921 pp. 178-183.
- 270.—Lamy, E. Les chames de la Mer Rouge. (D'après les matériaux recueillis par M. le Dr. Jousseau.) Bull. Mus. Hist. Nat. Paris 1921 1921 pp. 236-242 307-311.
- 271.—Lamy, E. Revision des *Lucinacea* vivants du Museum d'Histoire Naturelle de Paris. J. conchyliol. Paris 65 1921 pp. 233-318 335-388.
- 272.—Lamy, E. E. de Boury. J. conchyliol. Paris 66 1921 pp. 74-79.
- 273.—Lamy, E. Dr. F. Jousseau. J. conchyliol. Paris 66 1921 pp. 79-85.
- 274.—Latchford. Canadian Sphaeriidae. Canad. Field Nat. Ottawa 35 1921 pp. 68-70.
- 275.—Lawson, A. K. *Limnaea stagnalis* destroyed by rats. J. Conch. Leeds 16 1921 p. 144.
- 276.—Lawson, A. K. *Helicella virgata* (Da Costa) destroyed by moles. J. Conch. Leeds 16 1921 p. 226.
- 277.—Lawson, A. K. *Pomatias elegans* (Müller) at Llandudno. J. Conch. Leeds 16 1921 p. 227.
- 277a.—Lecointre, G. Une faune helvétique à Taza (Maroc). Comptes-Rendu soc. géol. France Paris 1920 1920 pp. 102-103.
- 278.—Lemoine, E. Le massif jurassique de Curienne La Thuile. Contribution à l'étude des chaînes subalpines de la Savoie. Bull. Soc. Hist. Nat. Savoie Ser. ii 17 1913-15 1916 pp. 59-128.
- 279.—Leuthardt, F. Ueber Fossilien aus dem Hauenstein-Basistunnel. Act. Soc. helvét. Sci. Nat. 101 1920 (1921) p. 203.
- 279a.—Leuthardt, F. Die Fossilien der Humpriesischichten aus dem Hauenstein-Basistunnel. Ammoniten, Nautiliden, Belemniten, Gastropoden, Lamellibranchiaten. Eclogae Geol. Helvet. Lausanne 16 1920 p. 131-132.
- 279b.—Liebus, A. Einige Bemerkungen über die Triasablagerungen der Insel Russkij bei Wladivostock. Centralbl. Min. Stuttgart 1921 1921 pp. 394-400.
- 280.—Loescher, W. Zum Bett des *Actinocamax plenus* Blainv. Zs. D. geol. Ges. Berlin Monatsb. 68 1916 pp. 39-41.
- 281.—Longstaff, J. Observations on the habits of *Cochlitoma zebra*, var. *fulgurata* (Pfeiffer), and *Cochlitoma zebra* var. *obesa* (Pfeiffer), in confinement. Proc. Zool. Soc. London 1921 1921 pp. 379-387 pls. i-iii.
- 282.—Loppens, K. Note sur la composition chimique et la formation des coquilles chez les mollusques. Ann. Soc. roy. zool. malac. Bruxelles 51 1921 pp. 75-90.
- 283.—M., E. L'acclimatation de la *Clausilia bidens* L. à Anduze. Bull. Soc. Sci. Nat. Nîmes 41 1914-1918 (1920) pp. 126-128.

- 284.—Maillieux, E. Découverte d'une faune siegenienne dans les environs de Pepinster. *Bul. soc. géol. paléont. hydr. Bruxelles* 29 1919 1920 pp. 90-91.
- 285.—Maillieux, E. Note sur quelques groupes de mollusques acéphales des terrains paléozoïques. *Bul. soc. géol. paléont. hydr. Bruxelles* 29 1919 1920 pp. 140-150.
- 286.—Maluquer, J. Les seccions ictiológicas i d'invertebrats marins en 1918. *Junta de Ci. Nat. Barcelona* 3 1918 pp. 192-198.
- 287.—Margier, E. Notes zoologiques. *Bull. Soc. Sci. Nat. Nîmes* 40 1912-1913 (1917) pp. 13-23.
- 288.—Margier, E. and Cabanès, G. *L'Helix melanostoma* Drap.: Comment elle a été introduite à Nîmes. *Bull. Soc. Sci. Nat. Nîmes* 41 1914-1918 (1920) pp. 126-132.
- 289.—Mariani, E. Osservazioni sugli strati di San Cassiano e di Raibl. *Natura Milano* 12 1921 pp. 81-98.
- 290.—Marr, J. E. The Pleistocene Deposits around Cambridge. *Q. J. Geol. Soc. London* 75 1920 pp. 204-229.
- 291.—Masefield, J. R. B. Report of Sections A.—Zoology. *Ann. Rep. N. Staff. F. Cl.* 55 1920-21 pp. 129-134 [Mollusca at p. 132].
- 291a.—Maury, C. et Caziot, E. Deux gisements nouveaux quaternaires à *Helix paretii* aux environs de Nice. *Compte-Rendu soc. géol. France Paris* 1918 1918 p. 105.
- 292.—Mauve, C. C. Geologische Untersuchungen im Molésongebiet. *Eclogae Geol. Helvet. Lausanne* 16 1921 pp. 374-455.
- 293.—May, W. L. A revised census of the Tasmanian fluviatile Mollusca. *Papers and Proc. R. Soc. Tasmania Hobart* 1920 (1921) pp. 65-75 pls. ix-xii.
- 294.—McCourt, W. E. The geology of Jackson County. *Miss. Bur. Geol. Mines Jefferson City Ser. ii* 14 1917 pp. 1-158.
- 295.—McEwan, E. D. The Ordovician of Madison, Indiana. *Amer. J. Sci. New Haven Conn.* 50 1920 pp. 154-158.
- 296.—Meinecke, W. H. Hunting *Achatinella meineckeii* and *Partulina dubia* in the Waianae Mountains, Oahu. *Nautilus Boston Mass.* 34 1921 pp. 110-113.
- 297.—Menzel, Über einige Pliocän-Fossilien von Niederrhein. *Zs. D. Geol. Ges. Berlin B* 66 1914 pp. 272-6.
- 298.—Merton, H. Untersuchungen über die Hautsinnesorgane der Mollusken. I. Opisthobranchia. *Abh. Senckenb. Ges. Frankfurt a. M.* 36 1920 pp. 447-473 pls. xxxiii and xxxiv.
- 299.—Mestayer, M. K. The occurrence of *Cylichnella a-achis* (Q. and G.) in New Zealand waters. *New Zealand Journ. Sci. Tech. Wellington N.Z.* 3 1921 pp. 303-304.
- 300.—Mestayer, M. K. Notes on the habits and uses of the Toheroa. *New Zealand Journ. Sci. Tech. Wellington N.Z.* 4 1921 pp. 84-85.
- 301.—Mikhailoff, S. Système nerveux cellulaire périphérique des Céphalopodes. *Bull. Inst. Océan. Monaco No.* 402 1921 pp. 1-12.
- 302.—Miller, A. M. Geology of the Georgetown quadrangle. *Bul. Geol. Surv. Kentucky Frankfort Ky. Ser. iv.* 1 1913 pp. 317-351 pls. v-x.
- 302a.—Monestier, J. Ammonites rares ou peu connues et ammonites nouvelles du Toarcien supérieur du sud-est de l'Aveyron (Mem. No. 54). *Mém. soc. géol. Paris* 23 1921 pp. 5-42 4 plates.
- 302b.—Monestier, J. Le Toarcien supérieur dans la région sud-est de l'Aveyron. *Bull. soc. géol. Paris* 20 1920 pp. 280-312.
- 303.—Moore, C. B. *Liguus* at Marco, Florida. *Nautilus Boston Mass.* 34 1921 pp. 139-140.
- 304.—Moore, R. C. The Bend Series of Central Texas. *Bul. Amer. An. Petrol. Geol.* 3 1919 pp. 217-241.
- 304a.—Morgan, J. de. Contribution à l'étude de la Faune des faluns de la Touraine. I. Mollusques terrestres et fluviatiles. *Bull. soc. géol. Paris* 19 1919 (1920) pp. 305-347.

- 305.—Morgan, P. G. Departmental report, Tangarakau coalfield, North Taranaki. New Zealand Journ. Sci. Tech. Wellington N.Z. 3 1921 pp. 297-301 [Mollusca at p. 298].
- Morgan, P. G. *vide* Suter, H.
- 306.—Morse, E. S. Observations on living gasteropods of New England. Peabody Mus. Salem Mass. 1921 1921 pp. 1-29 pls. i-ix.
- 307.—Munthe, H. (and others). Beskrivning till Kartbladet Sövdeborg. Sveriges Geol. Unders. Stockholm. Ser. Aa No. 142 1920 pp. 1-188.
- 308.—Naef, A. Ueber die Reminiscenzen einer ursprünglichen Metamerie in der Organisation primitiver Chitonen. Verh. Schweiz. Nat. Ges. 102 1921 pp. 150-151.
- 309.—Neaverson, E. Homoeomorphy in Ammonites. Proc. Liverp. Geol. Soc. 13 1921 pp. 113-121.
- 310.—Newton, R. B. On a marine Jurassic fauna from Central Arabia. Ann. Mag. Nat. Hist. London 7 1921 pp. 389-403 pl. xi.
- 310a.—Nicolesco, C. Application des empreintes au collodion à la reproduction des cloisons des Ammonoidés. Bull. soc. géol. Paris 18 1918 (1919) pp. 217-221 1 pl.
- 310b.—Nicolesco, C. et Debeaupuis, M. Nouvelles applications des empreintes au collodion à la reproduction des cloisons d'Ammonoidés. Bull. soc. géol. Paris 18 1918 (1919) pp. 222-232.
- 311.—Nicolle, C. et Gobert, E. Sur la présence de mollusques de l'espèce *Bullinus brocchii* dans l'oasis de Gafsa, foyer de bilharziose vésicale. Arch. Inst. Pasteur Afrique du Nord Algiers et Tunis 1 1921 pp. 231-2.
- 312.—Nylander, O. O. The type localities of *Lymnaea emarginata* Say and *L. ampla*. Mighels. Nautilus Boston Mass. 34 1921 pp. 77-80.
- 313.—Nylander, O. O. Egg-capsules of *Buccinum undatum* L. Nautilus Boston Mass. 35 1921 pp. 33-34 pl. i.
- 314.—Nylander, O. O. Collecting shells on the East Coast of Florida in the winters of 1891 and 1892. Nautilus Boston Mass. 34 1921 pp. 119-124.
- 315.—O'Connell, M. New species of Ammonite opercula from the Mesozoic rocks of Cuba. Amer. Mus. Novit. New York 28 1921 pp. 1-15.
- 316.—Odhner, N. H. On some species of *Pisidium* in the Swedish State Museum. J. Conch. Leeds 16 1921 pp. 218-223.
- 317.—Odhner, N. H. Norwegian Solenogastres. Bergens Museums Aarbok 1918-1919 1921 Hefte 1 No. 3 pp. 1-86.
- 318.—Odhner, N. H. *Sphaerium nitidum* Cl., a Siberian freshwater mussel, in Sweden. Proc. Malac. Soc. London 14 1921 p. 124.
- 318a.—Odhner, N. H. *Hydrobia jenkinsi*, E. A. Smith, en för Sverige ny brackvattenssnacka. Fauna och Flora Uppsala 16 1921 pp. 85-87.
- 319.—O'Donoghue, C. H. Nudi-branchiate mollusca from the Vancouver Island region. Trans. Canad. Inst. Toronto 13 1921 pp. 147-209 pls. i-v.
- 319a.—Oertel, W. Revision der Liasgeschiebe Mecklenburgs. Centralbl. Min. Stuttgart 1921 1921 pp. 458-471.
- 320.—Oldham, C. *Valvata macrostoma* Steenbuch in West Suffolk. J. Conch. Leeds 16 1921 p. 155.
- 321.—Oldham, C. *Pisidium parvulum* Clessin in the Great Ouse and the Severn. J. Conch. Leeds 16 1921 pp. 158-159.
- 322.—Oldham, C. *Pisidium tenuilineatum* Stelfox in the Thames. J. Conch. Leeds 16 1921 p. 214.
- 323.—Oldham, C. *Pisidium parvulum* Clessin in Cheshire. J. Conch. Leeds 16 1921 p. 214.
- 324.—Oldham, C. *Pisidium liljeborgii* in Montgomeryshire. J. Conch. Leeds 16 1921 p. 233.
- 325.—Oldroyd, I. S. A new Peruvian *Chione*. Nautilus Boston Mass. 34 1921 p. 93 pl. iv.
- 326.—Oldroyd, T. S. New Pleistocene mollusks from California. Nautilus Boston Mass. 34 1921 pp. 114-116 pl. v.

327.—Oldroyd, T. S. Some varieties of Western Olivellas. *Nautilus Boston Mass.* 34 1921 pp. 117-119 pl. v.

328.—Oppenheim, P. Über Neogen am Golfe von Orford im südöstlichen Mazedonien. *Centralbl. Min. Stuttgart* 1920 1920 pp. 9-14.

329.—Oppenheim, P. Über die systematische Stellung von *Dentellocaraculus* Oppenh. und die tiergeographischen Beziehungen der landbewohnenden Schnecken im europäischen Tertiär. *Centralbl. Min. Stuttgart* 1920 1920 pp. 296-307.

330.—Orcutt, C. R. Paradise Lost. *West American Scientist* 19 1921 pp. 18-20.

331.—Orcutt, C. R. Pleistocene beds of San Quintin Bay, Lower California. *West American Scientist* 19 1921 pp. 23-24.

332.—Ord, W. T. Geology. Nat. Hist. of Bournemouth and District. Bournemouth Natural Science Soc. 1914 1914 pp. 305-356.

333.—Ortmann, A. E. Some Central American species of Naiades, belonging or allied to the genus *Elliptio*. *Nautilus Boston Mass.* 35 1921 pp. 24-27.

334.—Ortmann, A. E. The anatomy of certain mussels from the Upper Tennessee. *Nautilus Boston Mass.* 34 1921 pp. 81-91.

335.—Ortmann, A. E. A new locality for *Arkansia wheeleri* Ortmann and Walker. *Nautilus Boston Mass.* 34 1921 p. 141.

336.—Ortmann, A. E. South American Naiades; a contribution to the knowledge of the freshwater mussels of South America. *Mem. Carnegie Mus. Pittsburg Pa.* 8 1921 pp. 451-670 pls. xxxiv-xlviii.

337.—Orton, J. H. Sex-manifestations and motion in molluscs. *Nature London* 108 1921 pp. 303-304.

338.—Orton, J. H. An oyster spat (1921) with mature male sexual products. *Nature London* 108 1921 p. 500.

339.—Øyen, P. A. Noen faunistiske Bemerkninger med Hensyn til *Trivia-Niveaet*. *Norsk. Geol. Tidsskr.* Christiania 5 1920 pp. 371-3.

(N-17041 r) q

340.—P., H. A. William Wilder. *Nautilus Boston Mass.* 34 1921 p. 101.

341.—Pallary, P. Quelques rectifications de nomenclature concernant des mollusques de la faune paléarctique. *Proc. Malac. Soc. London* 14 1921 pp. 141-147.

341a.—Pallary, P. Deuxième note sur la nomenclature des *Melanopsis* fossiles. *Bull. soc. hist. nat. Alger.* 11 1920 pp. 104-119.

341b.—Parona, C. F. Prospetto delle varie facies e loro successione nei calcari a Rudiste dell' Appennino. *Boll. Soc. Geol. Ital. Rome* 37 1918 (1919) pp. 1-12.

342.—Pelseneer, P. L'influence des courants dans la dispersion des organismes marins. *Ann. Soc. roy. zool. malac. Bruxelles* 42 1913 pp. 11-22.

343.—Pelseneer, P. La nécessité des études éthologiques. *Ann. Soc. roy. zool. malac. Bruxelles* 51 1921 pp. 63-69.

344.—Pelseneer, P. A propos de la formation et de la composition chimique de la coquille des mollusques. *Ann. Soc. roy. zool. malac. Bruxelles* 51 1921 pp. 70-74.

Penther, A. *vide* Wagner, A. J.

344a.—Petitclerc, P. Ornementation peu connue chez certaines Ammonites jurassiques. *Bull. soc. géol. Paris* 18 1918 pp. 233-234.

344b.—Petrbok, J. Zur Kenntniss von Najaden aus den Balkan-Ländern. *Arch. Natg. Berlin Abt. A* 86 (8) 1920 (1921) pp. 125-129 5 figs.

345.—Pfeil, E. Die Statocyste von *Helix pomatia* L. *Zs. wiss. Zool. Leipzig* 119 1921 pp. 79-113.

346.—Piaget, J. Corrélation entre la répartition verticale des mollusques du Valais et les indices de variation spécifiques. *Act. Soc. helvét. Sci. Nat.* 101 1920 (1921) pp. 224-225.

347.—Piaget, J. Corrélation entre la répartition verticale des mollusques du Valais et les indices de variation spécifiques. *Rev. Suisse Zool. Genève* 28 1920 pp. 125-133.

- 348.—Piaget, J. Introduction à la malacologie Valaisanne. Thèse présentée à la Faculté des Sciences de l'Université de Neuchâtel. . . . Sion 1921 pp. 1-101.
- 348a.—Piaget, J. Introduction à la Malacologie valaisanne. Bull. Murith. Sion 40 1916-18 (1919-20) pp. 86-186.
- 348b.—Piaget, J. Nouvelles recherches sur les Mollusques du Val Ferret et des environs immédiats. Bull. Murith. Sion 39 1914-15 (1916) pp. 22-73.
- 349.—Pilati, G. K. Brevi considerazioni sulla fauna di Vallebiaia (Colline pisane). Atti Soc. Tosc. Sc. Nat. (Proc.-Verb.) Pisa 28 1919 pp. 36-37.
- 350.—Pilsbry, H. A. Land shells from Palm Canyon, California and the Grand Canyon. Nautilus Boston Mass. 35 1921 p. 48.
- 351.—Pilsbry, H. A. A *Radiodiscus* from Bogota, Colombia. Nautilus Boston Mass. 35 1921 p. 49.
- 352.—Pilsbry, H. A. Note on a variety of *Liguus*. Nautilus Boston Mass. 34 1921 p. 140.
- 353.—Pilsbry, H. A. *Siphonaria japonica* Donovan an earlier name for *S. cochleariformis* Reeve. Nautilus Boston Mass. 34 1921 p. 141.
- 354.—Pilsbry, H. A. Manual of Conchology: Structural and systematic. With illustrations of the species. (Second series: *Pulmonata*). Philadelphia (Conchological Dept.) Acad. Nat. Sci. vol. 26 Pt. 102 pp. 65-128 pls. ix-xiii; Pt. 103 pp. 129-192 pls. xiv-xviii; Pt. 104 pp. 193-254 pls. xix-xxiv.
- 355.—Pilsbry, H. A. and Cooke, C. M. A new *Achatinella* from Oahu. Nautilus Boston Mass. 34 1921 pp. 109-110.
- 355a.—Piroutet, M. Sur la succession des horizons d'Ammonites du Toarcien et de l'Aalénien des environs immédiats de Salins (Jura). Bull. soc. géol. Paris 19 1919 (1920) pp. 15-22.
- 356.—Plate, L. Bemerkungen über die deszendenztheoretische Bewertung der Umwandlungen von *Planorbis multiformis*. Jenaische Zs. Natw. 56 1920 pp. 217-224.
- 357.—Pohlig, H. *Beneckeia subdenticulata* Pohlig aus den Röttdolomit von Jena. Zs. D. Geol. Ges. Berlin B 66 1914 p. 256.
- 358.—Popescu-Voitesti, I. Contribution à l'étude de la faune du calcaire nummulitique d'Albesti (Muscel). An. Inst. Geol. Romaniei Bucharest 4 1910 pp. 121-137 pl. i-iv. [The paper is repeated in Roumanian at pp. 138-155.]
- 359.—Popovici-Bazosanu, A. L'influence de quelques facteurs sur l'accroissement des gastéropodes d'eau douce. Arch. Zool. Exp. Gen. Paris 60 1921 pp. 501-521.
- 360.—Powell, A. W. B. Some North Auckland marine mollusca. New Zealand Journ. Sci. Tech. Wellington N.Z. 4 1921 pp. 204-205.
- 361.—Prashad, B. Report on the freshwater gastropod molluscs of Lower Mesopotamia. Part iii.—The families *Neritidae*, *Hydrobiidae* and *Melaniidae*. Rec. Ind. Mus. Calcutta 18 1921 pp. 215-227.
- 362.—Prashad, B. The Indian species of the genus *Tricula*, Benson. Rec. Ind. Mus. Calcutta 22 1921 pp. 67-69.
- 363.—Prashad, B. Notes on Lamelli-branches in the Indian Museum. Rec. Ind. Mus. Calcutta 22 1921 pp. 111-119 pl. xv.
- 364.—Prashad, B. Notes on Lamelli-branches in the Indian Museum. Rec. Ind. Mus. Calcutta 22 1921 pp. 137-149 pl. xx.
- Prashad, B. vide Annandale, N.
- 364a.—Principi, P. Ammoniti del Lias medio e superiore del gruppo del M. Catria. Riv. Ital. paleont. Parma 27 1921 pp. 19-32.
- 364b.—Principi, P. Ammoniti del Lias superiore dei Monti Mortoni (Umbria). Boll. Soc. Geol. Ital. Rome 34 1915 pp. 429-468 3 pls.
- 365.—Rabowski, F. Sur l'âge des couches à *Mytilus*. Bul. Soc. Sci. Nat. Lausanne 52 1919 pp. 77-82.
- 366.—Range, E. Die Geologie der Isthmuswüste. Zs. D. geol. Ges. Berlin B 72 1920 (1921) pp. 233-242 1 pl.

- 367.—Raymond, P. E. A contribution to the description of the fauna of the Trenton Group. Mus. Bul. Ottawa (Geol. Ser. 38) 31 1921 pp. 1-64 pls. i-xi.
- 367a.—Reck, H. Ueber eine neue Fauna im Juragebiet der deutsch-afrikanischen Mittellandbahn. Centralbl. Min. Stuttgart 1921 1921 pp. 431-436.
- 368.—Reed, F. R. C. A monograph of the British Ordovician and Silurian *Bellerophonacea*. pt. ii. Palaeont. Soc. London for 1919 1921 pp. 49-92 pls. ix-xiii.
- 369.—Reeside, J. B. The Helderburg limestone of Central Pennsylvania. Prof. Paprs. U.S. Geol. Surv. Washington 108-K 1917 pp. 185-225.
- 370.—Reeside, J. B. Some American Jurassic ammonites of the genera *Quenstedticeras*, *Cardioceras* and *Amseoboceras* family *Cardioceratinae*. Prof. Paprs. U.S. Geol. Surv. Washington 118 1919 pp. 1-64 24 plates.
- 371.—Reis, O. M. Über Bohrröhren in fossilen Schalen und über *Spongeliomorpha*. Zs. D. geol. Ges. Berlin A 73 1921 (1922) pp. 224-237 1 pl.
- 372.—Richardson, L. Ammonites from the Upper Lias railway-cutting Bloxham Oxon. Geol. Mag. London 58 1921 pp. 426-428.
- 372a.—Richarz, S. Neue Wirbeltierfunde in den Tonen von Tegelen bei Venlo. Centralbl. Min. Stuttgart 1921 1921 pp. 664-9.
- 373.—Ritchie, J. Giant squid cast ashore in N. Uist, Outer Hebrides. Scot. Nat. Edinburgh 1920 p. 57.
- 374.—Ritchie, J. Great Fan Shell (*Pinna fragilis*, Penn.), off Shetland. Scot. Nat. Edinburgh 1921 p. 162.
- 375.—Robson, G. C. On the anatomy and affinities of *Hypsobia nosophora*. Ann. Mag. Nat. Hist. London 8 1921 pp. 401-413.
- 376.—Robson, G. C. On the molluscan genus *Cochlitoma* and its anatomy, with remarks upon the variation of two closely allied forms. Proc. Zool. Soc. London 1921 1921 pp. 249-266.
- (N-17041 r) q
- 377.—Robson, G. C. The mollusca as material for genetic research. Proc. Malac. Soc. London 14 1921 pp. 227-231.
- 378.—Robson, G. C. On the *Cephalopoda* obtained by the Percy Sladen Trust Expedition to the Indian Ocean in 1905. Trans. Linn. Soc. London 17 1921 pp. 429-442 pls. lxx & lxxi.
- 379.—Robson, G. C. Is bisexuality in animals a function of motion? Nature London 108 1921 p. 212.
- 380.—Roebuck, W. D. Census of the Distribution of British Land and Fresh-water Mollusca. J. Conch. Leeds 16 1921 pp. 165-212.
- 381.—Rollier, L. Fossiles nouveaux on peu connus des terrains secondaires (Mésozoïques) du Jura et des contrées environnantes. Mém. Soc. Pal. Suisse Genève 42 1917 pp. 501-696 pls. xxxii-xl.
- 382.—Roman, F. Observations sur quelques fossiles du Toarcien et de l'Aalénien des environs de Saint-Amboix recueillis par M. Vedel. Bull. Soc. Sci. Nat. Nîmes 41 1914-1918. (1920) pp. 121-125.
- 383.—Ronchadze, J. Perisphinctes de l'Argovien de Chézery et de la Faucille. Mém. Soc. Pal. Suisse Genève 1916 1916 pp. 1-70 pls. i-vi.
- 384.—Rosenkrantz, A. Calcaire à Crania du port sud de Copenhague. Comm. Paleont. Mus. Mineral Geol. Univ. Copenhagen 16 1920 pp. 1-68. (French résumé pp. 69-79) 2 plates.
- 385.—Salfeld, H. Über einige stratigraphisch wichtige und einige seltene Arten der Gattung *Perisphinctes* aus dem oberen Jura Nordwestdeutschlands. Jahresber. Niedersächs. Geol. Ver. Hannover 7 1914 pp. 231-251 pls. xi-xiii.
- 386.—Salfeld, H. Über einige Aspidoceraten aus dem nordwestdeutschen, nordfranzösischen und englischen Oberoxford und Kimmeridge mit Bemerkungen über die Familie der *Aspidoceratinae* Zittel. Jahresber. nat. hist. Ges. (Abhandl.) Hannover 62-68 1919 pp. 21-31.
- 387.—Salfeld, H. Monographie der Gattung *Ringsteadia* (gen. nov.). Palaeontographica Stuttgart 1917 1917 pp. 69-84 pls. viii-xiii.

387a.—Salfeld, H. Das Problem des borealen Jura und der borealen Unterkroide. Centralbl. Min. Stuttgart 1921 1921 pp. 169–174.

388.—Saunders, W. H. B. Nature notes. Ann. Rept. Peterboro' Nat. Hist. Soc. 41–43 1912–14 pp. 57–58.

389.—Savornin, J. Le Moyen Atlas marocain. C. R. Acad. Sci. Paris 173 1921 pp. 322–324.

390.—Schermer, E. Die Mollusken-fauna der westlichen Ostsee. Schr. Zool. Stat. Büsum Meeresfauna Hamburg 4 1920 pp. 110–118.

391.—Schlesch, H. Land-og vatna-lindýr á Íslandi. (Fauna molluscorum extramarinorum Islandiæ.) Skýrsla Naturuf. Reykjavik 1919–1920 1921 pp. 48–80.

392.—Schlesch, H. Notes on the land and freshwater mollusca of East Iceland. J. Conch. Leeds 16 1921 pp. 224–226.

392a.—Schlosser, M. Neuere Funde von Wirbeltieren, besonders Säugtieren im Tertiär und Pleistocän der Iberischen Halbinsel. Centralbl. Min. Stuttgart 1921 1921 ppp. 436–444 471–479 490–501.

393.—Schmidt, G. Blutgefäßsystem und Mantelhöhle der Weinbergschnecke (*Helix pomatia*). Zs. wiss. Zool. Leipzig 115 1916 pp. 201–261.

394.—Schmidt, W. J. Einige Ergebnisse einer Untersuchung über den kristallographischen Charakter der Prismen in den Muschelschalen. Biol. Centralbl. Leipzig 41 1921 pp. 135–7.

395.—Schmidt, W. J. Ergebnisse einer Untersuchung über Bau und Bildung der Perlmuttermasse. Biol. Centralbl. Leipzig 41 1921 pp. 250–252.

396.—Schneider, E. Das Darm-system von *Cyclophorus ceylanicus*. (Fauna et Anatomia ceylanica, No. 5.) Jenaische Zs. Natw. 57 1920 pp. 1–86.

397.—Schöndorf, F. Der geologische Bau der Gehrdenener Berge bei Hannover. Jahresber. Niedersächs. geol. Ver. Hannover 6 1913 pp. 70–91.

398.—Schöndorf, F. Die Schichtfolge des Oberen Jura am Samkeweg

bei Springe. Jahresber. Niedersächs. geol. Ver. Hannover 7 1914 pp. 107–115.

399.—Schöndorf, F. Die Weiss-Jura-Aufschlüsse von Völksen am Deister. Jahresber. Niedersächs. geol. Ver. Hannover 7 1914 pp. 125–144.

400.—Schuh, F. Farbreite auf der Schalenoberfläche eines *Trocholites*. Zs. D. geol. Ges. Berlin B 72 1920 pp. 181–5.

401.—Schuurmans Stekhoven, J. H. Über die Atmung der Schnecken *Limax agrestis* L. und *Helix pomatia* L. Tijdschr. Ned. Dierk. Ver. Helder 18 1920 pp. 1–43.

402.—Scott, A. Various nudibranchs. Ann. Rep. Mar. Biol. Sta. Port Erin Liverpool 35 1921 pp. 21–22.

403.—Seitz, O. Die stratigraphisch wichtigen Inoceramen des norddeutschen Turons. Zs. D. geol. ges. Berlin B 73 1921 pp. 99–107.

404.—Shaw, E. W. Newly discovered beds of extinct lakes in southern and western Illinois and adjacent states. Bull. Geol. Surv. Illinois Urbana 20 1915 pp. 139–157.

405.—Shepard, J. The leaping razor shell. Nautilus Boston Mass. 34 1921 pp. 95–97.

406.—Shimek, B. Further notes on *Helicina occulta* Say. Proc. Iowa Acad. Sci. Des Moines 26 1919 pp. 385–390.

407.—Shimer, H. W. Permo-Triassic of North-western Arizona. Bul. Geol. Soc. Amer. New York 30 1919 pp. 471–497.

Shimizu, S. vide Yabe, H.

408.—Shirley, J. Land shells of the Queensland National Park. Queensl. Nat. Brisbane 3 1921 pp. 32–37.

409.—Shirley, J. Marine mollusca common to Australia and South Africa. Proc. R. Soc. Queensland Brisbane 31 1920 pp. 83–89.

410.—Simpson, C. T. Florida West Coast *Liguus*. Nautilus Boston Mass. 35 1921 pp. 20–22.

- 411.—Simroth, H. Über einige Nacktschnecken vom Malayischen Archipel von Lombok an ostwärts bis zu den Gesellschafts-Inseln. Abh. Senckenb. Ges. Frankfurt a. M. **37** 1920 pp. 259–302.
- 412.—Sobolew, D. Über Clymenien und Goniatiten. Palaeont. Zs. Berlin **1** 1914 pp. 348–378 pls. viii–ix.
- Solignac, M. *vide* Depéret, C.
- 413.—Sowerby, G. B. New shells from Port Alfred, collected by Lieut.-Colonel W. H. Turton. Proc. Malac. Soc. London **14** 1921 pp. 125–127.
- 414.—Spath, L. F. On Cretaceous Cephalopoda from Zululand. Ann. S. Afric. Mus. **12** 1921 pp. 217–321 pls. xix–xxvi.
- 415.—Spath, L. F. On Ammonites from Spitzbergen. Geol. Mag. London **58** 1921 pp. 297–305 347–356.
- 416.—Spek, J. Beiträge zur Kenntnis der chemischen Zusammensetzung und Entwicklung der Radula der Gastropoden. Zs. wiss. Zool. Leipzig **118** 1919 pp. 313–363 pls. v & vi.
- 417.—Spence, G. C. On *Obeliscus* (*Protobeliscus*) *riparius* (Pfr.). J. Conch. Leeds **16** 1921 p. 135.
- 418.—Spengler, E. Untersuchungen über die tektonische Stellung der Gosauschichten. ii. Teil: Das Becken von Gosau. Sitzber. Ak. Wiss. Wien. Abt. i **123** 1914 pp. 267–328.
- 419.—Stamp, L. D. On the Beds at the Base of the Ypresian (London Clay) in the Anglo-Franco-Belgian Basin. Proc. Geol. Ass. London **32** 1921 pp. 57–108 2 plates.
- 420.—Standen, R. Obituary notice: Edward Collier. J. Conch. Leeds **16** 1921 pp. 136–137.
- 421.—Stanton, T. W. A new cretaceous rudistid from the San Felipe formation of Mexico. Proc. U.S. Nation. Mus. Washington D.C. **59** 1921 pp. 453–454.
- 422.—Stanton, T. W. Non-marine cretaceous Invertebrates of the San Juan Basin. Prof. Paprs. U.S. Geol. Surv. Washington **98** 1916 pp. 309–326 5 pls.
- 423.—Stanton, T. W. and Vaughan, T. W. The fauna of the Cannonball Marine Member of the Lance Formation. Prof. Paprs. U.S. Geol. Surv. Washington **128** A 1920. pp. 1–66 pls i–x.
- 424.—Staub, T. Ueber Nautileen-Schalen. Verh. Schweiz. Nat. Ges. **102** 1921 p. 151.
- 425.—Stefanini, G. Sulla costituzione geologica della Cirenaica. I: Terreni eocenici. Atti Acc. Lincei Roma **30** Ser. 5 1921 pp. 146–149.
- 426.—Stehn, E. Vorläufige Mitteilung über das Callovien und seine Fauna in Südamerika. Centralbl. Min. Stuttgart **1920** pp. 45–49.
- Stein, S. *vide* Clark, H. W.
- 427.—Stelfox, A. W. *Pisidium clessini* in British Lochs. Nature London **108** 1921 pp. 40–41.
- 428.—Stieler, C. Ueber sogenannte Mortoniceraten des Gault. Centralbl. Min. Stuttgart **1920** pp. 345–352 392–400.
- 429.—Stolley, E. Neue Beiträge zur Kenntnis der norddeutschen oberen Kreide, i–iv. Jahresber. Niedersächs. geol. Ver. Hannover **9** 1916 pp. 69–108 pl. v.
- 430.—Stolley, E. Die Hiboliten und Neohiboliten der unteren Kreide in der *Lethaea geognostica*. Jahresber. nathist. Ges. (Abhandl.) Hannover **62–68** 1919 pp. 1–18.
- 431.—Stolley, E. Die Systematik der Belemniten. Jahresber. nathist. Ges. (Abhandl.) Hannover **62–68** 1919 pp. 1–59.
- 432.—Strong, A. M. Notes on the genus *Acteocina*, Gray. Nautilus Boston Mass. **35** 1921 pp. 44–48.
- 433.—Sturany, R. Ergebnisse einer von Prof. Franz Werner im Sommer 1910 mit Unterstützung aus dem Legate Wedl ausgeführten zoologischen Forschungsreise nach Algerien. vii. Mollusken. Sitzber. Ak. Wiss. Wien Abt. i **123** 1914 pp. 609–614.
- 434.—Sturany, R. and Wagner, A. J. Über schalentragende Landmollusken aus Albanien und Nachbargebieten. Denkschr. Ak. Wiss. Wien. **91** 1915 pp. 19–138 pls. i–xviii with map.

- 434a.—Suter, H. and Morgan, P. G. Lists of New Zealand Tertiary Mollusca from various localities examined and named from 1913 to the end of 1917. N.Z. Geol. Surv. Palaeont. Bull. 8 Wellington 1921 pp. 1-107.
- 435.—Swartz, C. K. (and others). Coal Measures of Maryland. Bul. Geol. Soc. Amer. New York 30 1919 pp. 567-596.
- 436.—Taylor, F. Mollusca at Romiley, Cheshire. Lancs. and Cheshire Nat. 13 1921 pp. 181-182.
- 437.—Taylor, J. W. Early mollusca in Yorkshire and Lincolnshire. Naturalist London 1921 p. 82.
- 438.—Taylor, J. W. *Helix (Acanthinula) lamellata* Jeffreys var. *albina*, nov. var. Naturalist London 1921 p. 82.
- Termier, H. vide Fallot, P.
- 439.—Thaanum, D. *Tapes philippinarum* in the Hawaiian Islands. Nautilus Boston Mass. 34 1921 p. 107.
- 440.—Thompson, L. D. Collecting at Nahant Beach, Mass. Nautilus Boston Mass. 34 1921 pp. 100-101.
- 441.—Tomlin, J. R. le B. Description of a new *Galeomma* from Bombay. J. Conch. Leeds 16 1921 p. 156.
- 442.—Tomlin, J. R. le B. Description of *Antimitra* (?) *hewitti* n. sp. from South Africa. J. Conch. Leeds 16 pp. 156-157.
- 443.—Tomlin, J. R. le B. Six new marine shells from South Africa. J. Conch. Leeds 16 1921 pp. 215-217 pl. viii.
- 444.—Tomlin, J. R. le B. Note on the *Mastra complanata* of Reeve and Deshayes. J. Conch. Leeds 16 1921 p. 226.
- 445.—Tomlin, J. R. le B. Note on *Trochus pennanti* Philippi. J. Conch. Leeds 16 1921 p. 236.
- 446.—Tomlin, J. R. le B. Note on the *Stomatella bicarinata*, *S. biporcata* and *S. margaritana* of A. Adams. J. Conch. Leeds 16 1921 p. 237.
- 447.—Tomlin, J. R. le B. Description of a new *Galeomma* from Bombay. J. Bombay Nat. Hist. Soc. 27 1921 pp. 964-965.
- 448.—Toms, H. S. Land and marine shells associated with local archeological remains. Abst. Proc. and Ann. Rept. Brighton Soc. 1920-21 1921 p. 52.
- 449.—Tornquist, A. Die nodosen Ceratiten von Olesa in Katalonien. Sitzber. Ak. Wiss. Wien. Abt. i 125 1916 pp. 229-250 pl. i.
- 450.—Trappmann, W. Die Muskulatur von *Helix pomatia* L. Zugleich ein Beitrag zur Kenntniss der Locomotion unserer einheimischen Pulmonaten. Zs. wiss. Zool. Leipzig 115 1916 pp. 489-585.
- 451.—Trauth, F. Das Eozänvorkommen bei Radstadt im Pongau und seine Beziehungen zu den gleichalterigen Ablagerungen bei Kirchberg am Wechsel und Wimpassing am Leithagebirge. Denkschr. Ak. Wiss. Wien. 95 1918 pp. 171-278 pls. i-v.
- 452.—Trechmann, C. T. On a deposit of interglacial clays on the Durham coast. Q. J. Geol. Soc. London 75 1920 pp. 173-196.
- 453.—Turchini, J. and Ladreyt, F. Sur la formation de la mélanine dans la poche du noir de la Seiche (*Sepia officinalis* L.). C. R. soc. biol. Paris 85 1921 pp. 905-907.
- 454.—Ussing, H. Bidrag til vore Dammuslingers Udviklingshistorie. Flora og Fauna Kjøbenhavn 1921 1921 pp. 74-78.
- 455.—Vanatta, E. G. Land shells of Southern Florida. Nautilus Boston Mass. 34 1921 pp. 93-95.
- 456.—Vanatta, E. G. Shells in Luray Cavern. Nautilus Boston Mass. 35 1921 p. 64.
- 457.—Vanatta, E. G. Shells of Zion National Park, Utah. Nautilus Boston Mass. 34 1921 pp. 140-141.
- 458.—Van Hoepen, E. C. N. Cretaceous Cephalopoda from Pondoland. Ann. Trsv. Mus. Pretoria 8 1921 pp. 1-48.
- 459.—van Hoepen, E. C. N. Description of some cretaceous ammonites from Pondoland. Ann. Transvaal Mus. Pretoria 7 1920 pp. 142-147 pls. xxiv-xxvi.

460.—van Straelen, V. Observations sur le Diestien et le Quaternaire a Deurne-Sud, près Anvers. Bul. soc. géol. paléont. hydr. Bruxelles 30 1920 pp. 123-127.

461.—Vaughan, T. W. The Reef-Coral fauna of Carrizo Creek, Imperial County, California, and its significance. Prof. Paprs. U.S. Geol. Surv. Washington 98-T 1916 pp. 355-395 pls. xciv-cii.

Vaughan, T. W. *vide* Stanton, T. W.

Vedel, L. *vide* Brun, P. de.

462.—Velooso, F. Sur l'origine des battements rythmiques dans le cœur du limaçon commun. C. R. soc. biol. Paris 84 1921 pp. 244-246.

463.—Vidal, L. M. Nota sobre tres especies nuevas y dos poco conocidas del eocénico del Pirineo Catalan. Butll. Inst. Catal. N. H. 20 1920 pp. 125-127.

464.—Vigh, J. Beiträge zur Kenntnis der Trias im Komitate Esztergom. Földt. Közl. Budapest 44 (10-12) 1914 (1921) Suppl. pp. 599-604 4 pls.

465.—Vilaseca, S. Contribució al estudi dels terrenys triàsics de la Província de Tarragona. Pub. Junta Ci. Nat. Barcelona 8 1920 pp. 1-66 pls. i-iii.

466.—Vredenburg, E. Comparative diagnoses of *Pleurotomidae* from the Tertiary formations of Burma. Rec. geol. Surv. India 53 1921 pp. 83-129 pls. xii-xiv.

467.—Vredenburg, E. Comparative diagnoses of *Conitae* and *Cancellariidae* from the Tertiary formations of Burma. Rec. geol. Surv. India 53 1921 pp. 130-141 pl. xv.

468.—Waddington, H. J. Marine Fauna. Invertebrata. Nat. Hist. of Bournemouth and District. Bournemouth Natural Science Soc. 1914 1914 pp. 213-230 [*Mollusca* at p. 228].

469.—Wagner, A. Beiträge zur Anatomie und Systematik der Stylomatophoren aus dem Gebiete der Monarchie und der Balkanländer. Anz. Ak. Wiss. Wien. 51 1914 pp. 333-338.

470.—Wagner, A. J. Beiträge zur Anatomie und Systematik der Stylomatophoren aus dem Gebiete der

Monarchie und der angrenzenden Balkanländer. Denkschr. Ak. Wiss. Wien 91 1915 pp. 429-498 pls. i-xxiv.

471.—Wagner, A. Höhlenschnecken aus Süddalmatien und der Hercegovina. Sitzber. Ak. Wiss. Wien. Abt. i 123 1914 pp. 33-48.

472.—Wagner, A. J. and Penther, A. Beschreibungen neuer oder bisher wenig gekannter Clausiliden (i. Teil.). Anz. Ak. Wiss. Wien. 56 1919 pp. 57-65.

Wagner, A. J. *vide* Sturany, R.

473.—Wagner, G. Beiträge zur Kenntnis des Oberen Hauptmuschelkalks von Mittel und Norddeutschland. Zs. D. geol. Ges. Berlin A 71 1919 pp. 80-103.

474.—Walker, B. What is the type of *Ancylastrum* Bourguignat? Nautilus Boston Mass. 35 pp. 5-9.

475.—Walker, B. *Ancylus obscurus* Haldeman and species referred to it. Nautilus Boston Mass. 34 1921 pp. 73-76 pl. iii.

476.—Walker, B. On the generic position of *Ancylus fluviatilis* Muller. Nautilus Boston Mass. 35 1921 pp. 57-58.

477.—Wanner, H. E. Some faunal remains from the Trias of York County, Pennsylvania. Proc. Acad. Nat. Sci. Philadelphia 1921 1921 pp. 25-37.

478.—Watson, H. *Krapfiella mirabilis*, Preston, and its affinities. Proc. Malac. Soc. London 14 1921 pp. 135-138.

479.—Watson, H. The validity of the names—*Testacella maugei* Fér. and *T. haliotideae* Drap. Naturalist London 779 1921 pp. 401-404.

480.—Weisensee, H. Die Geschlechtsverhältnisse und der Geschlechtsapparat bei *Anodonta*. Zs. wiss. Zool. Leipzig 115 1916 pp. 262-355.

481.—Weller, S. The geology of Hardin County. Part vi. Paleontology. Bull. geol. Surv. Illinois Urbana 41 1920 pp. 313-377 pls. iv-xi.

482.—Wenniger, F. A preliminary report on the *Unionidae* of St. Joseph River. Amer. Midl. Nat. Notre Dame Indiana 7 1921 pp. 1-13.

482a.—Wenz, W. Zur Frage der Altersstellung des schwäbischen Tertiärs. Centralbl. Min. Stuttgart 1921 1921 pp. 559-564.

482b.—Wenz, W. Ueber die zoogeographischen Beziehungen der Land- und Süßwassermollusken des europäischen Tertiärs. Eine Entgegnung an Herrn P. Oppenheim. Centralbl. Min. Stuttgart 1921 1921 pp. 687-649 713-721.

483.—Wepfer, E. "Streifenbüschel" bei Ammoniten. Ein Beitrag zur Organisation des Ammonitentieres. Zs. D. geol. Ges. Berlin Monatsb. 72 1920 pp. 339-348.

484.—Wetzel, W. Über ein Kieselholzgeschiebe mit Terebratuliden aus den Holtzener Kanal-Aufschlüssen. Jahresber. nathist. Ges. Hannover 62-68 1911-12-1917-18 1919 pp. 20-56.

Wheeler, W. C. *vide* Clark, F. W.

485.—Whitehead, H. More about "Moorlog"—a peaty deposit from the Dogger Bank in the North Sea. Essex Nat. Stratford 19 1920-1921 pp. 242-250.

486.—Whittaker, E. J. The fossil molluscan fauna of the marl deposits of the Ottawa district. Mus. Bul. Ottawa 33 1921 pp. 59-101.

487.—Wichmann, R. Contribución a la geología de la región comprendida entre el Río Negro y Arroyo Valcheta. An. Min. Agric. &c. Buenos Aires 13 No. 4 1919 pp. 9-45 pls. i-vii.

488.—Wieggers, F. Über die Fossilführung und Gliederung der Lössformation im Donautal bei Krems. Zs. D. geol. Ges. Berlin B 66 1914 pp. 379-383.

489.—Wilckens, O. Ueber einige von Ch. Darwin bei Port Famine (Magellan Strasse) gesammelte Kreideversteinerungen und das Vorkommen derselben Arten in der Antarktis. Göteborgs K. Vet. Vit. Samhälles Handl. 21 1920 No. 2 pp. 1-13.

490.—Wilckens, O. Die Bivalvenfauna des Ozeanons von Neuseeland. Centralbl. Min. Stuttgart 1920 pp. 260-265.

491.—Wilckens, R. Neue Gastropodenfunde im mittleren Buntsandstein des Leinetals. Zs. D. geol. Ges. Berlin B 72 1920 (1921) pp. 281-285.

492.—Wilson, A. E. The range of certain Lower Ordovician Faunas of the Ottawa Valley, with descriptions of some new species. Mus. Bul. Ottawa 33 1921 pp. 19-57.

493.—Winckworth, R. Scheme for the division of British marine area into census areas. J. Conch. Leeds 16 1921 pp. 152-155.

494.—Winckworth, R. *Helicodonta obvoluta* (Müller) in Sussex. J. Conch. Leeds 16 1921 p. 155.

495.—Winckworth, R. Giant race of *Cardium edule* L. J. Conch. Leeds 16 1921 p. 157.

496.—Winckworth, R. *Leda buccata* Stimpson from British Waters. J. Conch. Leeds 16 1921 p. 226.

497.—Winckworth, R. *Helicella barbara* new to West Sussex. J. Conch. Leeds 16 1921 p. 134.

498.—Winslow, M. L. Mollusca of Pisgah Forest, North Carolina. Nautilus Boston Mass. 35 1921 pp. 40-44.

499.—Winton, W. M. and Adkins, W. S. The geology of Tarrant County. Bull. Texas Univ. Austin Texas No. 1931 1919 pp. 1-123 pls. i-vi.

Winton, W. M. *vide* Adkins, W. S.

500.—Woodruffe - Peacock, T. W. Lincolnshire land and freshwater mollusca. Naturalist London 769 1921 pp. 81-82.

501.—Woodward, B. B. Notes on some species of *Pisidium*. Proc. Malac. Soc. London 14 1921 pp. 209-220.

Woodward, B. B. *vide* Gude, G. K.

Woodward, B. B. *vide* Kennard, A. S. in Marr, J. E.

Woodward, B. B. *vide* Kennard, A. S. in Trechmann, C. T.

502.—Woolsey, L. H. and others. The Bull Mountain coal field Musselshell and Yellowstone Counties, Montana. Bul. U.S. Geol. Surv. Washington No. 647 1917 pp. 1-218.

503.—Wrigley, A. Note on some of F. E. Edwards' specific names of Eocene mollusca. Proc. Malac. Soc. London 14 1921 pp. 139-140.

504.—Wurm, A. Beiträge zur Kenntnis der Trias von Katalonien. Zs. D. geol. Ges. Berlin B 71 1919 (1920) pp. 153-160.

505.—Wurm, A. Über einige neue Funde aus dem Muschelkalk der Umgebung von Heidelberg (*Ptychites* der Geb. und *Velopecten alberti* (Goldf.) Philippi). Z. D. geol. Ges. Berlin A 66 1914 pp. 444-448 1 pl.

506.—Yabe, H. and Shimizu, S. Notes on some cretaceous ammonites from Japan and California. Sci. Rep. Tohoku Imp. Univ. Sendai 5 1921 pp. 53-59 pls. i & ii.

506a.—Yabe, H. Occurrence of *Pleurotoma (Antiplanes) perversa* Gabb in the Tertiary and Later Deposits of Japan. J. Geol. Soc. Tokyo 27 1920 p. (4) 77.

507.—Yehara, S. On some New Species of *Trigonia* from the Lias of Prov. Nagato and the Cretaceous of Prov. Awa. J. Geol. Soc. Tokyo 28 1921 pp. 7-11 1 pl.

508.—Yokoyama, M. Notes on Tertiary Shells from Izumo and Shinano. J. Geol. Soc. Tokyo 28 1921 p. 317.

General Treatises and Monographs.—MORSE, 306; PIAGET, 348; PILSBRY, 354; STOLLEY, 431.

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APLACOPHORA.

Alexandromenia crassa sp. n. Norway, ODHNER Bergens Mus. Aarb. 1918-19 Hefte 1 No. 3 p. 22.

Anämenia, ODHNER 317.

Chaetoderma, ODHNER 317.

Dorymenia, ODHNER 317.

Drepanomenia, ODHNER 317.

Gymnomenia gen. n. with *G. pellucida* sp. n. Norway, ODHNER Bergens Mus. Aarb. 1918-19 Hefte 1 No. 3 p. 48.

Gymnomeniidae fam. n. Solenogastres, ODHNER Bergens Mus. Aarb. 1918-19 Hefte 1 No. 3 p. 48.

Kruppomenia borealis sp. n. Norway, ODHNER Bergens Mus. Aarb. 1918-19 Hefte 1 No. 3 p. 25.

Neomenia, ODHNER 317.

Nematomenia banyulensis var. n. *norvegica* Norway, ODHNER Bergens Mus. Aarb. 1918-19 Hefte 1 No. 3 p. 43.

Proneomenia, ODHNER 317.

Simrothiella, ODHNER 317.

Wirenia gen. n. with *W. argentea* sp. n. Norway, ODHNER Bergens Mus. Aarb. 1918-19 Hefte 1 No. 3 p. 31.

Gastropoda.

PROSOBRANCHIA, TEREBRIDÆ, CONIDÆ
TURRIDÆ & CANCELLARIIDÆ.

Admete couthouyi fig., DALL U.S. Nation. Mus. Bull. 112 pl. xvi fig. 7.—A., MORSE 306.

Antimitra (?) *hewitti* sp. n. S. Africa, TOMLIN J. Conch. Leeds 16 pp. 156–157.

Antiplanes santarosana, thalaea figg., DALL U.S. Nation. Mus. Bull. 112 pl. i figs. 8 & 9.

Bela, MORSE 306.

Cancellaria (*Progabba*) *cooperi* figg., DALL U.S. Nation. Mus. Bull. 112 pl. v figs. 3 & 4.

†*Cancellaria* with *C. birmanica* sp. n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 pp. 139–140.—*C. gilberti* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 13.—C., WRIGLEY 503.

†*Clathrodrillia diegensis* sp. n. Pleistocene, California, OLDROYD Nautilus 34 p. 115.

Clatinnella [? *Clathurella*], CHRISTENSEN 101.

†*Clavatula* with *C. (Perrona) birmanica* and var. *singuensis* sp. & [var.] n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. 53 p. 85.

†*Conorbis*, VREDENBURG 467.

Conus californicus fig., DALL U.S. Nation. Mus. Bull. 112 fig. 9.—*C. pulchrelineatus* nom. n. for *C. lineatus* Brug. non Sol., HOPWOOD J. Conch. Leeds 16 p. 151.—*C. marchionatus*, Hinds, HOPWOOD 228.

†*Conus californicus fossilis* var. n. Pleistocene, California, OLDROYD Nautilus 34 p. 116.—C. with *C. (Lithoconus) kydaonensis*, *myaukmigonensis*, *C. (Chelyconus) minbuensis* spp. n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 pp. 133–139.—*C. lineatus* Sol., HOPWOOD 229.

Cryptoconus tremperianus fig., DALL U.S. Nation. Mus. Bull. 112 pl. xii fig. 5.

†*Cryptoconus*, VREDENBURG 467.

†*Cythereella* (*Agathotoma*) *quentinensis* sp. n. Pleistocene, DALL West Amer. Scientist 19 p. 21.

†*Daphnella* (*Raphitoma*) *birmanica* sp. n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 p. 126.

†*Defrancia malayana* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 247.

Drillia hottentota var. n. *fuscescens* S. Africa, SOWERBY Proc. Malac. Soc. 14 p. 127.

†*Drillia* with *D. indica, decemplicata, dormitor, pinfoldi, D. (Brechtotoma) yabei sarasvati, annandalei, reticulata, budhaica, convexa, gautama, D. (Crassispira) subbataviana, subpromensis; tittabweensis, myaukmigonensis, iravadica, birmanica, constricta, delabensis, colteri* and var. *decemcostata, mindegyiensis* spp. and var. n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 pp. 103–123.—*D. serana* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 247.

†*Genotia* with *C. garrowi, birmanica, singuensis* spp. n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 pp. 131–133.

Lora grippi fig., DALL U.S. Nation. Mus. Bull. 112 pl. iii fig. 8.

†*Mangilia* with *M. elegantissima, M. (Clathurella) martini, quinqueangularis* spp. n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 pp. 123–126.—*M. belaeformis, cutis-anserina, extensaeformis* Schepm. var. *crasselirata* spp. and var. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 247.

†*Merica* with *M. promensis* sp. n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 pp. 139–140.

†*Microdrillia*, ALDRICH 4.

†*Mitramorpha turriculata* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 5.

Moniliopsis fancherae fig., DALL U.S. Nation. Mus. Bull. 112 pl. vi fig. 3.

†*Oligotoma epitonica* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 247.

Philbertia crystallina fig., DALL U.S. Nation. Mus. Bull. 112 pl. vi fig. 4.

Pleurotoma, CHRISTENSEN 101.

†*Pleurotoma* (*Peratotoma*) *gardneri* sp. n. Eocene, U.S.A., ALDRICH Mem. Amer. Pal. Ithaca 9 No. 37 p. 8.—*P.* with *P.* (*Hemipleurotoma*) *singwensis*, *humilis* var. *iravadica*, *iris*, *P.* (*Gemmula*) *birmanica*, *thyrsus*, spp. & var. n., Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 pp. 96–103.—*P. comonensis*, *globosa* spp. n. Cretaceous, Bolivia, FRITZSCHE Centralbl. Min. Stuttgart 1921 p. 274.—*P.* (*Antiplanes*) *perversa*, YABE 506a.

†*Raphitoma* *embryolirata*, *alfurica*, spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 247.

Suavodrillia kennicottii fig., DALL U.S. Nation. Mus. Bull. 112 pl. xi fig. 7.

†*Surcula* with *S. sethuramae*, *thangensis*, *birmanica*, *iravadica*, *S.* (*Pleurofusua*) *fuscus*, *phasma*, spp. n., Burma Tertiary, VREDENBURG Rec. geol. Surv. India 53 pp. 86–96.

†*Sveltia*, VREDENBURG 467.

Taranis, CHRISTENSEN 101.

†*Teleochilus* Geo. Harris not = *Telochilus* nom. mut. Cossmann, COSSMANN Rev. Crit. paleozool. Paris 24 1920 p. 175.

†*Terebra* *insulindae*, *myuriformis*, *malayana*, *fistularis*, spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 246.

†*Trigonostoma* with *T. birmanicum*, *speciosum* spp. n. Tertiary, Burma, VREDENBURG Rec. geol. Surv. India 53 pp. 39 & 41.

Turris (*Aforia*) *circinata* fig., DALL U.S. Nation. Mus. Bull. 112 pl. xi fig. 6.

†*Turris* (*Pleurotoma*) *nodoideus*, *T. specus*, *bimoniatus* spp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 pp. 9–7.

†*Uxia*, VREDENBURG 466.

OLIVIDÆ, HARPIDÆ, MARGINELLIDÆ, VOLUTIDÆ AND MITRIDÆ.

Ancilla errorum sp. n. S. Africa, TOMLIN J. Conch. Leeds 16 p. 216.

†*Ancillopsis tuomoyi* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 12.

Marginella epipolia sp. n., TOMLIN J. Conch. Leeds 16 p. 216.

†*Marginella rutteni* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 246.

Mitra lowei fig., DALL U.S. Nation. Mus. Bull. 112 pl. xv fig. 4.

Olivella boetica fig., DALL U.S. Nation. Mus. Bull. 112 pl. xv fig. 1.—*O. boetica diegensis*, *boetica mexicana*, *biplicata fucana* and *parva* varr. n. California, OLDROYD Nautilus 34 pp. 118–119.

†*Olivella semilignitica* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 13.—*O.*, OLDROYD 327.

†*Pusiolina* nom. n. for *Pusiola* Monterosato, COSSMANN Rev. Crit. paleozool. Paris 25 p. 79.

†*Turricula janesburgensis*, *bacata*, *cincta*, *textilis* spp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128–A pp. 45–46.—*T. alfurica* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 246.

†*Turris lloydi*, *cordensis*, *T. ? tormentaria* spp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128–A p. 48.

†*Voluta monocoronata* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 246.

Volutomitra alaskana fig., DALL U.S. Nation. Mus. Bull. 112 pl. xi fig. 3.

Yetus, DAUTZENBERG 139.

FASCIOLARIIDÆ, TURBINELLIDÆ, BUCCINIDÆ, NASSARIIDÆ, PYRENIDÆ, MURICIDÆ AND THAIDIDÆ.

Aesopus goforthi fig., DALL U.S. Nation. Mus. Bull. 112 pl. ix fig. 3.

Alectrion (*Schizopyga*) *californiana* fig., DALL U.S. Nation. Mus. Bull. 112 pl. xi fig. 4.

Alia hypodra fig., DALL U.S. Nation. Mus. Bull. 112 pl. vi fig. 10.

Amphissa columbiana, *c. allior versicolor* fig., DALL U.S. Nation. Mus. Bull. 112 pls. vi fig. 9, xi figs. 9 & 10.

†*Anachis minuta* sp. n. Pleistocene, California, OLDROYD Nautilus 34 p. 114.

Ancistrolepis trochoideus fig., DALL U.S. Nation. Mus. Bull. 112 pl. ix fig. 5.

Aulacofusus calathus, *georgianus*, *herendeeni*, *esychus*, *calamaeus*, *trophius*, figg., DALL U.S. Nation. Mus. Bull. 112 pl. viii figs. 2-4, x figs. 5 8 9.

Beringius marshalli fig., DALL U.S. Nation. Mus. Bull. 112 pl. ix fig. 3.

Buccinulum, IREDALE 240.

Buccinum glaciale parallelum, *cnis-matum*, *diplosetum*, *simulatum*, *oedematum*, *eugrammatum*, *rondinum*, *stigmatopleura*, *orotundum*, *bulimuloideum*, *kadiakense fucanum*, figg., DALL U.S. Nation. Mus. Bull. 112 pl. viii fig. 10, x figs. 2-4, xii figs. 1-3 6 9 12, xv figs. 2 5.—*B. undatum*, FISCHER 173.—*B. u.*, NYLANDER 313.—*B.*, MORSE 306.

Bullia dulcis sp. n. *B. pura* var. n. *balteata* S. Africa, SOWERBY Proc. Malac. Soc. 14 pp. 125 & 127.

Busycon, MORSE 306.

Chrysodomus variciferus, *onchodes*, figg., DALL U.S. Nation. Mus. Bull. 112 pl. ix figs. 6-8.

Columbella approximata sp. n. S. Africa, SOWERBY Proc. Malac. Soc. 14 p. 126.—*C.*, MORSE 306.

†*Columbella sundaica* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 245.

Cominella acutispira sp. n. S. Africa, SOWERBY Proc. Malac. Soc. 14 p. 125.

†*Cominella*, WRIGLEY 503.

†*Eovasum* with *E. peruvianum* sp. n. Eocene, Peru, DOUVILLÉ J. Conchyliol. 66 p. 4.

Eupleura grippi fig., DALL U.S. Nation. Mus. Bull. 112 pl. v fig. 1.

†*Euthriofusus wanneri* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 246.

†*Fasciolaria lloydi*, *F. (Mesorhytis) dakotensis*, *F. ? cordenensis*, *mandanensis* spp. n. Lance formation, Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128-A pp. 42-43.

Fusus, MORSE 306.

†*Fusus*, WRIGLEY 503.

†*Hindsia teschi* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 244.

Latisipho halli, *jordani*, figg., DALL U.S. Nation. Mus. Bull. 112 pl. viii fig. 6, xii fig. 7.

†*Levifusus ? tormentarius* sp. n. Lance formation, Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128-A p. 41.

Liomesus nassula fig., DALL U.S. Nation. Mus. Bull. 112 pl. viii fig. 6.

Melongena, DAUTZENBERG 139.

†*Melongena lainei*, BUKOWSKI 83.

Metzgeria californica fig., DALL U.S. Nation. Mus. Bull. 112 pl. xiii fig. 7.

Mohnia exquisita, *robusta*, *corbis*, *siphonoidea*, figg., DALL U.S. Nation. Mus. Bull. 112 pl. x figs. 10-12, xii figs. 10 & 11.

Murex (Tiremis) santarosana, *M. (Pteropurpura) carpenteri*, figg., DALL U.S. Nation. Mus. Bull. 112 pl. xiii figs. 2-4.—*M.*, DAUTZENBERG 139.

†*Murex embryoliratus*, *fufanus*, spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 246.—*M.*, WRIGLEY 503.

†*Muricopsis moluccana* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 246.

Nassa, MORSE 306.

†*Nassa pleona* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 12.—*N. fufana*, *alfurica*, *infraelevis*, *extinctelirata*, *varicoscostata*, spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 245.

Neptunea Bolten Type *N. despecta* Bolten, IREDALE Proc. Malac. Soc. 14 p. 206.—*N. elegantula*, *orpheus*, *peregrina*, *avalonensis*, *beringi*, *kamchatkana*, *pacifica*, *tenuisculpta*, *scitula*, *smithi*, *rotundata*, *eucymata*, *triphera*, *multicostata* figg., DALL U.S. Nation. Mus. Bull. 112 pls. vi figs. 6, 7; viii figs. 5, 8; x figs. 6, 7; xi figs. 5, 11, 12; xiii figs. 1, 6, 8; xv figs. 3, 7-9.

†*Phos seranus*, *nodulosecostatus* spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 245.

Plicifusus elacodes fig., DALL U.S. Nation. Mus. Bull. 112 pl. xii fig. 4.

Ptychatractus occidentalis fig., DALL U.S. Nation. Mus. Bull. 112 pl. vi fig. 8.

Purpura, DAUTZENBERG 139.

Pyrgulofusus harpa fig., DALL U.S. Nation. Mus. Bull. 112 pl. vii fig. 1.

†*Pyrifusus* (*Neptunella*) *gracilis* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128-A p. 41.

†*Pyropsis hancocki* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128-A p. 42.

†*Pyryla*, WRIGLEY 503.

Searlesia dira fig., DALL U.S. Nation. Mus. Bull. 112 pl. viii fig. 1.

†*Siphonalia quadrilineata* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 15.—*S. spiracuta* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 246.

Tritonalia rainei, *barbarensis*, *interfossa*, *i. alpha*, *lurida aspera*, figg., DALL U.S. Nation. Mus. Bull. 112 pls. vi figs. 1, 5; xi fig. 8; xiii figs. 8, 12; xv fig. 11.

Tritonidea, DAUTZENBERG 139.

Trophon, MORSE 306.

†*Trunculariopsis* nom. n. for *Truncularia* Di Monterosato, mut., COSSMANN Rev. crit. paleozool. Paris 25 p. 79.

Volutopsius stejnegeri, *trophonius*, *simplex*, *stefanssoni*, *filosus*, *limatus*, figg., DALL U.S. Nation Mus. Bull. 112 pl. viii figs. 9, 11; ix figs. 1, 2; x fig. 1; xii fig. 8.

ATLANTIDÆ, CYMATIDÆ, CASSIDIDÆ, TONNIDÆ, CYPRÆIDÆ, STROMBIDÆ, APORRHAIIDÆ AND STRUTHIOLARIIDÆ. *Aporrhais*, MORSE 306.

†*Alaria*, DE BRUN & VEDEL 80.

Anchura (*Drepanochilus*) *americana* var. *pusilla*, *perveta* and var. *gracilis* spp. and var. n. Lance formation, Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128A pp. 38 & 39.

Allanta, KALKSCHMID 253.

†*Calyptrophorus septentrionalis* sp. n. Lance formation, Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128A p. 39.

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Cypraea ostergaardi nom. n. for *C. pacifica*, DALL Nautilus 35 p. 50.—*C.*, CHRISTENSEN 101.—*C.*, DAUTZENBERG 139.

†*Cypraea estellensis* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 14.—*C. fufana* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 244.

†*Orthaulax caepa* sp. n. Tertiary, Oligocene ? Cuba, COOKE Prof. Paprs. U.S. Geol. Surv. 129-B p. 31.

†*Ovula regularoidea* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 14.

Ranella, MORSE 306.

Strombus, DAUTZENBERG 139.

†*Strombus deningeri* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 244.

†*Triton*, WRIGLEY 503.

Trivia cosmoi sp. n. Seychelles, DAUTZENBERG J. Conchyliol. 65 pp. 330-331.

CERITHIIDÆ, PLANAXIDÆ, NERINEIDÆ, TRICHOTROPIDIDÆ, VERMETIDÆ, TURRITELLIDÆ AND CAECIDÆ.

†*Batillaria*, CHARPIAT 100.

†*Bourguetia*, DE BRUN & VEDEL 80.

Caecum, BARTSCH 40.

Cerithiopsis fraseri, *C. (Cerithiopsis) signa* British Columbia, *C. onealensis* Puget Sd., *C. (Cerithiopsis) willetti* Alaska, spp. n., BARTSCH Proc. Biol. Soc. Washington 34 pp. 34-36.

†*Cerithiopsis estellensis* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 15.

Cerithium, CHRISTENSEN 101.

†*Cerithium polygyrinum* Cretaceous, Argentina, *C. pucense*, *miraflorense* Cretaceous, Bolivia, spp. n., FRITZSCHE Centralbl. Min. Stuttgart 1921 pp. 273-274.—*C. (Pirenella) guebbardi* sp. n. Tertiary, France, DOLLFUS Bull. soc. geol. Paris 18 p. 279.—*Cerithium (Potamides) baumbergeri*, sp. n. Tertiary, Switzerland, DOLLFUS Bull. soc. geol. Paris 18 p. 277.—*C.*, WRIGLEY 503. *C. gustavei* nom. mut. for *C. archiaci* Dollfus, COSSMANN Rev. crit. paleozool. 25 1921 p. 79.

Elephantanellum gen. n. with *E. carpenteri* sp. n. N. Pacific, BARTSCH J. Wash. Acad. Sci. 10 p. 567.

Fartulum, BARTSCH 40.

†*Glauconia*, DOUVILLÉ 158 & 159.

†*Mathilda insulindae* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 244.

Micranellum gen. n., BARTSCH J. Wash. Acad. Sci. 10 p. 568.

†*Nerinea*, NEWTON 310.

†*Pirena*, DOUVILLÉ 159.

†*Pleurocera*, DOUVILLÉ 159.

Potamides with *P. (Tympantotomus) margaritaceus* varr. n. *tabana*, *carica* Tertiary, Asia Minor, BUKOWSKI Sitzber. Ak. Wiss. Wien 123 pp. 97-111.

†*Promathildia*, DE BRUN & VEDEL 80 & 81.—*P. (Clathrobaculus) huddlestoni* sp. n. Jurassic COSSMANN Essais Pal. Comp. Paris 11 p. 341.

†*Pyrasus*, DOUVILLÉ 158.

Tachyrhynchus lacteolus fig., DALL U.S. Nation. Mus. Bull. 112 pl. vi fig. 2.

†*Terebraliopsis*, DOUVILLÉ 158.

Trichotropis kroyeri, T. (*Iphinoë*) *coronata*, figg., DALL U.S. Nation. Mus. Bull. 112 pl. xi figs. 1 & 2.—*T.*, MORSE 306.

Triforis innocens sp. n. S. Africa, SOWERBY Proc. Malac. Soc. 14 p. 127.

†*Triforis malayanus*, *seranus*, spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 244.

Turritella communis, BATAILLON 41.—*T.*, MORSE 306.

†*Turritella haresi* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128-A p. 37.

†*Vermetus nodosus* sp. n. Pleistocene, California, OLDROYD Nautilus 34 p. 116.

†*Wexfordia* gen. n. and *W. dautzenbergi* sp. n. Pliocene, Ireland, HARMER Palaeont. Soc. London Plioc. Moll. vol. ii p. 704.

TIARIDÆ, PSEUDOMELANIIDÆ, PLEUROCERIDÆ, LITTORINIDÆ AND FOSSARIDÆ.

Algamorda newcombiana fig., DALL U.S. Nation. Mus. Bull. 112 pl. v fig. 5.

†*Amnicola* with *A. lustrica gelida* var. n. Pleistocene, U.S.A., BAKER Nautilus 35 pp. 22-23.—A., PRASHAD 361.

Anculosa, GOODRICH 194.

†*Cithna*, HARMER 214.

Fossarina, POWELL 360.

†*Fossarus*, HARMER 214.—*F. (?) blesensis* sp. n. Tertiary, France, DE MORGAN Bull. soc. géol. 19 p. 341.

Iselica fenestrata fig., DALL U.S. Nation. Mus. Bull. 112 pl. xiii fig. 2.

Lacuna porrecta fig., DALL U.S. Nation. Mus. Bull. 112 pl. xiv fig. 2.—*L.*, MORSE 306.

†*Lacuna*, HARMER 214.

Lithasia (Angitrema) fuliginosa is a var. of *L. (A.) geniculata*; *L. duttoniana*, *angulata*, *parva*, *venusta*, *downiei* = *L. armigera*, GOODRICH Nautilus 35 pp. 58-59.

Littorina littorea, ELLIOTT 166.—*L. l.*, PELSENER 342.

†*Littorina* with *L. rudis* var. n. *reevei* Pliocene, Britain, HARMER Palaeont. Soc. London Plioc. Moll. vol. ii pp. 653-665.

Melanoides, PRASHAD 361.

†*Melanoides bicarinata* sp. n. Cretaceous, Argentina, FRITZSCHE Centralbl. Min. Stuttgart 1921 p. 273.

Melanopsis with *M. subtingitana* var. *laevis* var. n. Lower Mesopotamia, PRASHAD Rec. Ind. Mus. 18 pp. 225-227.

†*Melanopsis*, PALLARY 341a.

Micromelania, DYBOWSKI & GROCHMALICKI 161.

†*Omphaloptycha paronai* sp. n. Trias, Italy, MARTANI Natura Milano 12 pp. 81-98.

†*Pseudomelania*, DE BRUN & VEDEL 80.

Turricaspia subgen. n. of *Micro-melania* with *M. (T.) caspia* varr. n. *brunnea*, *inflata*, *major*, *pulla*, *pullula*, *M. (T.) turricula* var. n. *major*, *M. (T.) nova* sp. n., *M. (T.) spica* varr. n. *lordosa*, *lyrata*, *incisata*, *striata*, *M. (T.) Trachycaspia* *andrussowi*, *pseudodimidiata*, spp. n., *M. (Turricaspia)* *brusinae* sp. n., *M. (T.) Trachycaspia eulimellula* sp. n., *M. (T.) dimidiata* varr. n. *eucalia*, *gracilis*, *ptychophora*, *basalis*, *bicarinata*, Caspian Sea, DYBOWSKI & GROCHMALICKI Abh. Zool.-Bot. Ges. Wien 9 pp. 5-40 pls. i-iv.

SOLARIIDÆ, JEFFREYSIIDÆ, LITIOFIDÆ, RISSOIDÆ, HYDROBIIDÆ, VIVIPARIDÆ, VALVATIDÆ, AMPULLARIIDÆ AND ASSIMINEIDÆ.

Alaba catalinensis sp. n. California. BARTSCH J. Wash. Acad. Sci. 10 p. 572.

Alvania sanjuanensis San Juan Isd. *burrardensis* British Columbia spp. n., BARTSCH Proc. Biol. Soc. Washington 34 pp. 37-38.

Ampullaria americanista, *pulchella gallardoi* sp. and subsp. n. Argentina, IHERING Prim. Réun. Nac. soc. arg. Cienc. Nat. Buenos Aires 1919 pp. 330-337.

Ampullariidae, ANNANDALE 14.

Assimineidae, GUDE 206.

Astenothyra subgen. n. *Stenothyrrinae* with *A. burmanica* sp. n. Burma, ANNANDALE & PRASHAD Rec. Ind. Mus. 22 pp. 133-136.

Belgrandia kusceri sp. n. Jugo Slavia, WAGNER Sitzber. Ak. Wiss. Wien 123 p. 48.

Bithynia [vide etiam *Bythinia*], PRASHAD 361.

†*Bythinia* [vide etiam *Bithynia*] *dubia* sp. n. Tertiary, Spain, SCHLOSSER Centralbl. Min. Stuttgart 1921 p. 491.

†*Campeloma amarillensis* sp. n. Cre-taceous, New Mexico, STANTON Prof. Papers. U.S. Geol. Surv. 98 p. 318.

Cyclostremella concordia sp. n. Olga, Washington, BARTSCH J. Wash. Acad. Sci. 10 p. 572.

Frauenfeldia saturata sp. n. Jugo Slavia, WAGNER Sitzber. Ak. Wiss. Wien 123 p. 47.

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Gerstfeldtia, DYBOWSKI & GROCHMALIKI 161.

Geyeria plagiostoma sp. n. Jugo Slavia, WAGNER Sitzber. Ak. Wiss. Wien 123 p. 46.

Gollewskia, DYBOWSKI & GROCHMALICKI 161.

Hydrobia jenkinsi, ODHNER 318a.

†*Hydrobia subconoidalis* sp. n. Tertiary, France, DE MORGAN Bull. soc. géol. 19 p. 326.—H., WRIGLEY 503.

Hydrobiidae, ANNANDALE 13.

Hypsobia nosophora, ROBSON 375.

Lartetia moenana, HAAS 211.

Moitessieria rollandiana, HAAS 211.

†*Nystia tagica*, sp. n. Tertiary, Portugal, SCHLOSSER Centralbl. Min. Stuttgart 1921 p. 495.

Pachylabra newilliana sp. n. India, ANNANDALE Rec. Ind. Mus. 22 pp. 11-12.—P., ANNANDALE 11.

Paladilhia pleurotoma, HAAS 211.

Paludestrina jenkinsi, BOYCOTT 74.

Potamopyrgus elongatus sp. n. Tasmania, MAY Pap. & Proc. R. Soc. Tasmania 1920 p. 72.

Rissoa, MORSE 306.

†*Rissolina serana*, *trilirata*, spp. n., Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921.—R., WRIGLEY 503.

Skenea, MORSE 306.

Solarium, DAUTZENBERG 139.

†*Solarium*, DE BRUN & VEDEL 81.

Stenothyra with *S. ornata* sp. n. India, ANNANDALE & PRASHAD Rec. Ind. Mus. 22 pp. 123-133.

Trachybaicalia, DYBOWSKI & GROCHMALIKI 161.

Tricula with *T. gravelyi* sp. n. India, PRASHAD Rec. Ind. Mus. 22 pp. 67-69.—T., PRASHAD 361.

Turbinicola gen. n. Type *Ampullaria nux* Rve., ANNANDALE Rec. Ind. Mus. 22 pp. 9-11.

Valvata macrostoma, OLDHAM 320.

†*Valvata* with *V. tricarinata supra-carinata* var. n. Pleistocene, U.S.A., BAKER Nautilus 35 pp. 23-24.—*V. yaviana, satira*, Cretaceous, Argentina, *V. humilis* Cretaceous, Bolivia, spp. n., FRITZSCHE Centralbl. Min. Stuttgart 1921 pp. 273-274.

Vitrella absoloni sp. n. Jugo Slavia, WAGNER Sitzber. Ak. Wiss. Wien. 123 p. 45.

CYCLOPHORIDÆ, CYCLOSTOMATIDÆ AND TRUNCATELLIDÆ.

Acme banatica leptocheila subsp. n. Balkans, STURANY & WAGNER Denk. Ak. Wiss. Wien 91 p. 83.

†*Acroptychia*, GERMAIN 188.

Auritus (*A.*) *sturanyi scalariniformis, mnelensis*, *A. (Pleuropoma) roseoli rioliensis* subsp. n. Balkans, STURANY & WAGNER Denk. Ak. Wiss. Wien 91 pp. 84-86.

Craspedopoma, COCKERELL 112.

Cyclophoridae, GUDE 206.—*C.*, KRETZSCHMAR 262.

Cyclophorus ceylanicus, SCHNEIDER 396.

†*Cyclostoma bisulcatoides* sp. n. Tertiary, Portugal, SCHLOSSER Centralbl. Min. Stuttgart 1921 p. 496.

Diplommantina tumida varr. n. *abdita, laisanensis* India, GUDE Fauna Brit. India iii 1921 pp. 337-338.

Eutudora (Eutudorops) paradoxum sp. n. Cuba, DE LA TORRE & HENDERSON Proc. U.S. Nation. Mus. 59 p. 264.

Leptopoma nitidum, BARTSCH 38.

†*Mascaria*, GERMAIN 188.

Nodopomatias nom. mut. *Eupomatias* G.-A., GUDE Fauna Brit. India iii 1921 p. 161.

†*Omphalotropis madagascariensis* sp. n. Quaternary, Madagascar, GERMAIN Ann. paléont. Paris 10 p. 30.

Opisthosiphon (Opisthosiphona) with *O. (O.) berryi semiapertum* subsp. n. *O. (O.) paredonense* and *O. (O.) p. paredonense, transitorium* sp. & subspp. n. *O. (O.) obturatum* and *O. (O.) o. obturatum, subobturatum banaoense* sp.

& subspp. n. *O. (O.) apertum, bioscai* and *b. bioscai* and *b. tersum, salustii, evanidum* and *e. evanidum* and *e. degenatum, occultum*, spp. & subspp. n., *O. (Opisthosiphon) protractum, judasense, delectum, obiectum* and *o. obiectum* and *o. tenuicostum, lamellicostatum* spp. & subspp. n. Cuba, DE LA TORRE & HENDERSON U.S. Nation. Mus. Proc. 59 pp. 247-263.

Pomatias elegans, BOYCOTT 75.—*P. e.*, LAWSON 277.

†*Tropidophora*, GERMAIN 188.

Truncatellidae, GUDE 206.

HIPPONYCIDÆ, CAPULIDÆ, XENOPHORIDÆ, NARICIDÆ, ADEORBIIDÆ, LAMELLARIIDÆ AND NATICIDÆ.

†*Acrybia*, HARMER 214.

†*Amaura*, HARMER 214.

†*Amauropsis* with *A. øyeni, gracilis, odhneri* spp. n. Pliocene, Britain, HARMER Palaeont. Soc. London Plioc. Moll. vol. ii 1919 1921 pp. 700-703.

Capulus californicus fig., DALL U.S. Nation. Mus. Bull. 112 pl. xv fig. 6.

†*Capulus seranus*, sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 244.

Crepidula, MORSE 306.

Crucibulum, MORSE 306.

Cryptonatica aleutica, clausa, janthostoma, figg., DALL U.S. Nation. Mus. Bull. 112 pl. xiv figs. 10-12.

Eunaticina oldroydi figg., DALL U.S. Nation. Mus. Bull. 112 pl. xiv figs. 1 & 3.

Euspira draconis, pallida figg., DALL U.S. Nation. Mus. Bull. 112 pl. xiv figs. 4-6.

†*Fusispira*, RAYMOND 367.

Lamellaria, MORSE 306.

†*Lamellaria falunica* sp. n. Tertiary, France, DE MORGAN Bull. soc. géol. 19 p. 344.

Megalomphalus californicus fig., DALL U.S. Nation. Mus. Bull. 112 pl. xiv fig. 7.

Natica aureozona sp. n. S. Africa, TOMLIN J. Conch. Leeds 16 p. 217.—*N.*, MORSE 306.

†*Natica* with *N. (Lunatia) cavellii*, *assimilis*, *N. (Polinices) hemiclausa* var. *oakleyensis* spp. & var. n. Pliocene, Britain, HARMER Paleont. Soc. London Philoc. Moll. vol. ii 1919 1921 pp. 672-699.

†*Tornus* with *T. dollfusi*, Redonian. *T. (Adeorbis) vidali*, Miocene; *T. (A.) pallaryi*, *monterosatoi*, Pliocene spp. n. COSSMANN Essais Pal. comp. 11 pp. 346-350.

Velutina, BÄRDARSON 30.—V., MORSE 306.

EPITONIIDÆ.

Acirsa borealis fig., DALL U.S. Nation. Mus. Bull. 112 pl. xiii fig. 10.

Epitonium lowei, *savinae* figg., DALL U.S. Nation. Mus. Bull. 112 pl. vi figs. 11 & 12.

†*Epitonium munistriatum*, *multi-liniferum*, *subacutum* spp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 pp. 10-11.—*E. clarki* sp. n. Pleistocene, California, OLDROYD Nautilus 34 p. 115.—*E. dakotense* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128a p. 35.

†*Niso*, WRIGLEY 503.

Opalia varicostata fig., DALL U.S. Nation. Mus. Bull. 112 pl. xiii fig. 11.

Scala (Sodaliscala) opposita, (*Hyaloscala*) *reconducta*, (*Acrilla*) *recreata* spp. n., Port Alfred, S. Africa, DE BOURY Bul. Mus. Paris 1921 pp. 233-235.

Scalaria, MORSE 306.

†*Scalaria*, WRIGLEY 503.

STROMBIFORMIDÆ AND PYRAMIDELLIDÆ.

Actis, CHRISTENSEN 101.

Eulima, CHRISTENSEN 101.

†*Itruvia*, DOUVILLÉ 159.

Menestho, MORSE 306.

Odostomia (Menestho) beauforti sp. n. N. Carolina, JACOT J. Elisha Mitchell Sci. Soc. 36 p. 139.—*O. (Amaura) engbergi*, *sanjuanensis*, *washingtonia* spp. n. San Juan Isd., BARTSCH J. Wash. Acad. Sci. 10 pp. 570-571.—*O. (Chrysallida) cumshewaensis* sp. n. British Columbia, BARTSCH Proc. Biol. Soc. Washington 34 p. 34.—*O.*, CHRISTENSEN 101.

†*Odostomia (Evalea) bartschi* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 8.—*O.*, WRIGLEY 503.

†*Pyramidella* with *P. (Iphiana) obtusoides* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 10.

Turbonilla (Chemnitzia) engbergi sp. n. San Juan Isd., BARTSCH J. Wash. Acad. Sci. 10 p. 570.—*T. (Strioturbonilla) kincaidi* sp. n. Puget Sd., BARTSCH Proc. Biol. Soc. Washington 34 p. 33.—*T.*, MORSE 306.

†*Turbonilla (Ptycheulimella) elinensis*, *tardiusculus*, *T. (Cingalina) tuscahomensis*, spp. n., Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 9.—*T. ? cordensis* Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128a p. 34.—*T. malayana* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 244.

PROSERPINIDÆ AND HELICINIDÆ.

Diplopinax subgen. n. *Geophorus*, BARTSCH J. Wash. Acad. Sci. 8 p. 655.

Helicina occulta, SHIMEK 406.

†*Helicina occulta*, SHIMEK 406.

Helicinidae, GUDE 206.

Schistopinas subg. n. *Geophorus*, BARTSCH J. Wash. Acad. Sci. 8 p. 654.

NERITIDÆ, NERITOPSIDÆ, TURBINIDÆ, TROCHIDÆ AND ORBITESTELLIDÆ.

†*Ataphrus (Pleuroella) normaniensis*, *A. (Endianaulax) apiculatum*, Lias; *A. acmon* (d'Orb.) var. *bajocensis*, Jurassic spp. & var. n. COSSMANN Essais Pal. comp. 11 pp. 342-344.

†*Chilodonta douvillei* sp. n. Jurassic COSSMANN Pal. comp. 11 p. 357.

†*Chilodontoidea hudlestoni* sp. n. Jurassic COSSMANN Essais Pal. comp. 11 p. 356.

Cidarina carlotta fig., DALL U.S. Nation. Mus. Bull. 112 pl. xviii fig. 4.

†*Cirsochilus*, DOUVILLÉ 158.—*C. peyroti*, Oligocene; *C. dollfusi*, Pliocene spp. n. COSSMANN Essais Pal. comp. 11 pp. 351-353.

Clanculus atricatena sp. n. S. Africa, TOMLIN J. Conch. Leeds 16 p. 216

†*Collonia lacoingtrei* sp. n. Miocene
COSSMANN Essais Pal. comp. 11 p. 355.

†*Cyclostrema* (?) *martini* sp. n.
Pliocene, Moluccas, FISCHER Centralbl.
Min. Stuttgart 1921 p. 243.

†*Eucyclus*, DE BRUN & VEDEL 80.

†*Eumargarita* (*Solariella*) *douvillei*
Cretaceous; *E. (Microgaza) pontilevi-*
ensis, *E. (Turricula) tatei* Miocene spp.
n. COSSMANN Essais Pal. comp. 11
pp. 358-359.

Gibbula coxi, Ang., TOMLIN 446.
—*G. (Colliculus) courjaulti* sp. n.
Miocene COSSMANN Essais Pal. comp.
11 p. 361.

†*Helicocrypteus brasili* sp. n. Jurassic
COSSMANN Essais Pal. comp. 11 p. 355.

†*Leptolhyra carinulata* sp. n. Pliocene
COSSMANN Essais Pal. comp. 11 p. 352.

Lirularia lirulata, parcipicta, opta-
bilis, succincta, acuticostata, funiculata,
figg., DALL U.S. Nation. Mus. Bull. 112
pls. xvii figs. 1 3 7 9; xviii figs. 5 10.

Machaeroplax obscurus, ? *M. rudis*
figg., DALL U.S. Nation. Mus. Bull. 112
pl. xviii figs. 11-14.

Margarita, DALL 133.—*M.*, MORSE
306.

Margarites johnsoni nom. n. for *Mar-*
garita acuminata Migh. & Ads. non
Sow, DALL Nautilus 35 p. 49.—*M.*
marginatus, albolineatus, beringensis,
umbilicalis, paupercula, figg., DALL U.S.
Nation. Mus. Bull. 112 pl. xvi figs.
1-6; xviii figs. 7 8 15.

†*Mölleria*, HARMER 214.

†*Nerita brouzetensis* COSSMANN nom.
mut. for *N. bruni*, COSSMANN Rev.
crit. paléozool. 24 1920. p. 175.

Neritina, DAUTZENBERG 139.—*N.*,
PRASHAD 361.

†*Neritina baueri* sp. n. Cretaceous,
New Mexico, STANTON Prof. Paprs.
U.S. Geol. Surv. 98 p. 317.—*N.*,
DOUVILLÉ 158.—*N.*, WRIGLEY 503.—
N. beziéri sp. n. Eocene, France, DAL-
MIER Compte-Rendu soc. géol. France
1917 p. 63.

†*Norrisella subscalata, sacyi* spp. n.
Oligocene COSSMANN Essais Pal. comp.
11 pp. 360-361.

Phusianella tomlini sp. n. Western
Australia, GATLIF & GABRIEL Proc.
Malac. Soc. 14 p. 173.

†*Phasianella*, DE BRUN & VEDEL
80.—*P. (Steganomphalus) girondiensis*
sp. n. Oligocene COSSMANN Essais Pal.
comp. 11 p. 354.

Pupillaria pupilla, rhodia, sordida,
simbla, salmonea, figg., DALL U.S.
Nation. Mus. Bull. 112 pls. xvii figs. 2 4
10-12; xviii figs. 3 6 9.

Solariella peramabilis, triplostephanus
figg., DALL U.S. Nation. Mus. Bull. 112
pl. xvii fig. 8; xviii figs. 1 2.

Stomatella bicarinata, A. Ads.=
Gibbula coxi, Ang.; *S. biporcata*, A.
Ads. is a valid name; *S. margaritana*,
A. Ads.=*Trochus roseus* Gmel., TOMLIN
J. Conch. Leeds 16 p. 237.

Tegula (Promartynia) pulligo figg.,
DALL U.S. Nation. Mus. Bull. 112
pl. xvii figs. 5 6.

†*Tegula hemphilli* sp. n. Pleistocene,
California, OLDROYD Nautilus 34 p. 115.

†*Teinostoma subangulata* var. *smithi*,
regularis var. and sp. n. Eocene, U.S.A.,
ALDRICH Bul. Amer. Pal. Ithaca 9
No. 37 pp. 11-12.

†*Tinostoma* with *T. boussaci* sp. n. *T.*
(*Solariorbis*) *dollfusi* nom. mut. Miocene
COSSMANN Essais Pal. comp. 11 pp.
344-345.

Trochus pennanti, Phil., TOMLIN 445.
—*T. roseus*, Gmel., TOMLIN 446.—*T.*,
MORSE 306.

†*Trochus insulindae, alfuricus, spp.*
n. Pliocene, Moluccas, FISCHER Cen-
tralbl. Min. Stuttgart 1921 p. 243.—
T. (Calliostoma), DE BRUN & VEDEL 80.

†*Turbo santavallensis* sp. n. Cre-
taceous, Peru, FRITZSCHE Centralbl.
Min. Stuttgart 1921 p. 276.—*T.*, DE
BRUN & VEDEL 80.—*T. (Senecus)*
martinicensis sp. n. Miocene COSSMANN
Essais Pal. comp. 11 p. 350.

Umboonium anguliferum, POWELL 360.

Vitrinella (Docomphala) columbiana
sp. n. Departure Bay, BARTSCH Proc.
Biol. Soc. Washington 34 p. 39.

STOMATIDÆ, COCCULINIDÆ, HALIOTIDÆ
PLEUROTOMARIIDÆ, BELLEROPHON-
TIDÆ & FISSURELLIDÆ.

†*Bellerophon chesterensis* sp. n. Basal,
Okaw and Golconda limestones, Illinois,
WELLER Bull. Geol. Surv. Illinois 41
p. 365.—*B.* with *B. ledburyensis, sphaera*

var. *judez* sp. & var. n. Silurian, Britain, REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 pp. 52-58.

†*Bucaniopsis* with *B. forbesi*, *nicoli*, spp. n., Ordovician, Britain, REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 pp. 58-62.

†*Bucanopsis ornatus* sp. n. Basal Okaw and Golconda limestones, Illinois, WELLER Bull. Geol. Surv. Illinois 41 p. 366.

†*Carinaropsis* with *C. gracilis*, *maccoyi* spp. n. Ordovician, Britain, REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 pp. 86-87.

Cemoria, MORSE 306.

†*Cymbularia* with *C. drummuckensis* Ordovician, Britain; *C. merita*, *turnbulli*, Silurian, Britain; *C. youngi* Ordovician, Britain; *C. ? woodlandensis* Silurian, Britain, spp. n., REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 pp. 63-70.

Euphemus randolphensis sp. n. Basal Okaw and Golconda limestones, Illinois, WELLER Bull. Geol. Surv. Illinois 41 p. 365.

Fissurella mutabilis var. n. *aurantia* S. Africa, SOWERBY Proc. Malac. Soc. 14 p. 127.—F., DAUTZENBERG 139.

Haliotis kamchatkana, *cracherodii* mut. *holzneri*, c. mut. *imperfata*, *wallensis*, figg., DALL U.S. Nation. Bull. Mus. 112 pls. xix figs. 1 2; xx figs. 1-3; xxi figs. 1 2; xxii figs. 1 2.

Hemitoma golischae fig., DALL U.S. Nation. Mus. Bull. 112 pl. v fig. 2.

†*Hormotoma*, RAYMOND 367.

†*Murchisonia whiteavesi* nom. mut. for *M. archiaciana*, Whiteaves p. 79. COSSMANN Rev. crit. paléozool. 25 1921.

†*Phragmostoma* with *P. decipiens* sp. n. Silurian, Britain, REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 p. 84.

†*Pleurotomaria*, DE BRUN & VEDEL 80 & 81.

†*Ptychomphalus*, DE BRUN & VEDEL 81.

†*Salpingostoma* with *S. asteroideum*, *buccinoideum*, *etheridgei*, *shallochense* spp. n. Ordovician, Britain, REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 pp. 74-78 88.

†*Stappersella* subgen. n. of *Gosseletia*, MAILLIEUX Bul. Soc. geol. pal. Bruxelles 29 p. 144.

†*Temnodiscus* with *T. salopiensis*, *solitarius* spp. n. Silurian, England, REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 pp. 49-52.

†*Trematonotus* with *T. dilatatus* var. *girvanensis*, *T. portlocki* Silurian, Britain; *T. portlocki* Ordovician, Britain, sp. & var. n., REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 pp. 79-83.

†*Zonidiscus* with *Z. grayi* and var. *shallochensis*, *Z. ? transiens* spp. & var. n. Ordovician, Britain, REED Palaeont. Soc. London Mon. Ord. Sil. Bellerophon. Pt. ii 1919 1921 pp. 71-74.

ACMEIDÆ & PATELLIDÆ.

Acmaea, MORSE 306.

Cellana, POWELL, 360.

Patella variabilis var. n. *constellata* S. Africa, SOWERBY Proc. Malac. Soc. 14 p. 127.

†*Patella wienschmanni* sp. n. Conglomerate limestone, Wernigerode, BÖHM Zs. D. Geol. Ges. B 71 p. 82.

INCERTÆ SEDIS.

†*Amphitrochilia sybilloides* sp. n. Jurassic, France, COSSMANN Comptes Rendu soc. géol. France Paris 1920 p. 100.

†*Chara elliptica*, *ovalis*, spp. n. Cretaceous, Argentina, FRITZSCHE Centralbl. Min. Stuttgart 1921 p. 273.

†*Crossostoma brasili* sp. n. Jurassic COSSMANN Essais Pal. comp. 11 p. 342.

†*Gilbertia estellensis* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 13.

†*Laevibuccinum* (*Euryochetus* ?) *harrisi* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 16.

†*Mitrella fufana* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 245.

†*Scenella elevata* sp. n. Cambrian, England, COBBOLD Q. J. Geol. Soc. 76 p. 364.

†*Seminella alfurica* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 245.

†*Tiburinus algeriensis* sp. n. Pliocene CCSSMANN Essais Pal. comp. 11 p. 362.

Opisthobranchia (INCLUDING PTEROPODA).

Acanthodoris with *A. nanaimoensis* sp. n. Vancouver, O'DONOGHUE Trans. Can. Inst. Toronto 13 pp. 168-172.

Actæon (Rictaxis) painei fig., DALL U.S. Nation. Mus. Bull. 112 pl. iii fig. 5.—*A.*, WRIGLEY 503.

Acteocina, STRONG 432.

Aeolidida, O'DONOGHUE 319.

Anisodoris, O'DONOGHUE 319.

Aplysia, EALES 162.—*A.*, MERTON 298.

Archidoris, O'DONOGHUE 319.

†*Bulla*, WRIGLEY 503.

Cadlina, O'DONOGHUE 319.

Chioraeba, KJERSCHOW-AGERSBERG 259.

Chioraera, O'DONOGHUE 319.

Coryphella with *C. fusca, trilineata* spp. n. Vancouver, O'DONOGHUE Trans. Can. Inst. Toronto 13 pp. 194-197.

†*Cylichna teschi, serana, botella* spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 247.

†*Cylichnella dakotensis* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128A p. 48.

Cylichnella, MESTAYER 299.

Dendronotus with *D. giganteus, rufus* spp. n. Vancouver, O'DONOGHUE Trans. Can. Inst. Toronto 13 pp. 183-190.

Desmopteris pacificus sp. n. N. Pacific, ESSENBERG Univ. Cal. Pub. Zool. Berkeley 19 pp. 85-86.

Diaulula, O'DONOGHUE 319.

Dirona, O'DONOGHUE 319.

Doto with *D. columbiana* sp. n. Vancouver, O'DONOGHUE Trans. Can. Inst. Toronto 13 p. 204.

Firoloida kowalevskyi Vayss., BRÜEL 79.

†*Helcionella, cingulata, oblonga, rugosa* var. *comleyensis* spp. & var. n. Cambrian, England, COBBOLD Q. J. Geol. Soc. 76 pp. 364-365.

Hermisenda, O'DONOGHUE 319.

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†*Latouchella* gen. n. *L. costata, L. (?) striata* spp. n. Cambrian, England, COBBOLD Q. J. Geol. Soc. 76 pp. 366-367.

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†*Ringicula dubia* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128-A p. 47.

†*Tenuiactæon* gen. n. with *T. pertenuis* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 16.

Tethys, MERTON 298.

†*Tornatina tumida* sp. n. Pleistocene, California, OLDROYD Nautilus 34 p. 116.

Triopha elioti sp. n. Vancouver, O'DONOGHUE Trans. Can. Inst. Toronto 13 p. 165.

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Spelaecoconcha polymorpha sp. n. Jugo Slavia, WAGNER Sitzber. Ak. Wiss. Wien 123 p. 43.

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†*Testacella pontileviensis* sp. n. Tertiary, France, DE MORGAN Bull. soc. géol. 19 p. 307.

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Atopos galeatus sp. n. Celebes, SIMROTH Abh. Senckb. Ges. Frankfurt a. M. 37 p. 278.

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†*Limax martyi* sp. n. Tertiary, France, DOLLFUS Bull. soc. géol. 20 p. 46.

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†*Parmacella pontileviensis* sp. n. Tertiary, France, DE MORGAN Bull. soc. géol. 19 p. 308.

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†*Helicophanta* with *H. guestieri* var. n. *preguestieri* Quaternary, Madagascar, GERMAIN Ann. paléont. Paris 10 pp. 8–11.

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†*Lopha* with *L. (?) philbyi* sp. n. Upper Jura, Arabia, NEWTON. Ann. Mag. Nat. Hist. 7 pp. 389-403.

Ostrea with *O. canveyensis*, *angulata erthenensis*, *vertex* spp. & var. n. Great Britain, BELL Essex Nat. 19 pp. 209-220.—*O. angulata*, PELSENER 342.—*O. edulis*, DOLLFUS 157.—*O.*, BELL 45 & 46.—[*O.*], CHURCHILL 103.—*O.*, DAUTZENBERG 139.—*O.*, DOLLFUS 156.

†*Ostrea intermedoides* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 23.—*O. (Rastellum) costellata*, *moussoni*, *O. (Gryphaea) exaltata*, *O. oxfordiana*, *planaria*, *O. (G.) controversa*, *deminuta*, *O. jurana*, *O. (G.) ledonica*, *gryphaeata*, *caprina*, *O. sublaeviuscula*, *gammalensis*, *curvata*, *latis*, *catinoides*, *dewalquei*, *lampada*, *trigona*, *dimidiata*, *subportella*, *sporta*, *kochiana*, *laufonensis*, *tombeckiana*, *hubertina*, *lorioliana* spp. n. Mesozoic, ROLLIER Mem. Soc. Pal. Suisse 42 pp. 543-595.—*O.*, NEWTON 310.

†*Plicatula ravni* sp. n. Danian, Copenhagen, ROSENKRANTZ Comm. Paleont.

Mus. Mineral. geol. Univ. Copenhagen 16 p. 34.—*P.* with *P. petitiolerci*, *piettei*, *lugdunensis arietina*, *spinosisima*, *mayalis*, *dumortieri*, *nippiana*, *spondyloidea*, *parkinsoniae*, *exaltata*, *cossmanni*, *pateroides*, *sequana*, *P. (Atreta) colleti*, *ungula*, *ambigua*, *toarciensis*, *oxfordiensis*, *lorioli*, *argoviensis*, *inconspicua* spp. n. Mesozoic, ROLLIER Mem. Soc. Pal. Suisse 42 pp. 503-542.—*P.*, DE BRUN & VEDEL 80 & 81.

PECTINACEA.

†*Amussium*, DE BRUN & VEDEL 81.

†*Chlamys* with *C. cossmanni* sp. n. Lias, DE BRUN & VEDEL Bull. Soc. Sci. Nat. Nimes 40 pp. 95-99.—*C.*, DE BRUN & VEDEL 81.—*C.*, NEWTON 310.

†*Entolium*, DE BRUN & VEDEL 81.

†*Grandipecten* Cossmann synonym of *Gigantopecten* Rovereto, COSSMANN Rev. crit. paléozool. Paris 24 1920 p. 175.

†*Hinites cossmanni* sp. n. Charmouthian, ROLLIER Mem. Soc. Pal. Suisse 42 p. 618.—*H.*, NEWTON 310.

Lima, CROZIER 127.

†*Lima*, DE BRUN & VEDEL 80 & 81.

†*Pecten vaun* nom. n. for *P. vauhani*, *P. v. var. flabellum* nom. n. for *P. vauhani* var. *flabellum*, *P. (Chlamys) landi* nom. n. for *P. (C.) waylandi*, COOKE Nautilus 34 137.—*P. (Plagiocetenium) hallae*, *P. (Patinopecten) rhytidus* spp. n. Pliocene, Alaska DALL Nautilus 35 pp. 76-77.—*P. falki* Cretaceous, Westphalia, BÖHM Zs. D. Geol. Ges. Berlin 69 p. 195.—*P. cleburnensis* sp. n. Cretaceous, U.S.A., ADKINS & WINTON Bull. Texas Univ. 1945 p. 71.—*P. corneolus*, DUBOIS 160.—*P. gracilisquamosa* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 248.—*P. (Grandipecten) phrusinoniensis* sp. n. Miocene, Italy, CECCHIA-RISPOLI Boll. Soc. Geol. Ital. 39 p. 168.

†*Plagiostoma*, DE BRUN & VEDEL 81.

Propeamusium alaskense fig., DALL U.S. Nation. Mus. Bull. 112 pl. i fig. 2.

Pseudamusium vancouverense figg., DALL U.S. Nation. Mus. Bull. 112 pl. i figs. 4 & 5.

†*Terquemia*, DE BRUN & VEDEL 81.

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†*Actinodesminae* subfam. n. *Pterineidae*, MAILLIEUX Bul. Soc. geol. pal. Bruxelles 29 p. 149.

Adula diegensis Dall fig., DALL U.S. Nation. Mus. Bull. 112 pl. i figs. 1 & 3.

Atrina oldroydi fig., DALL U.S. Nation. Mus. Bull. 112 pl. ii figs. 4 5 6.

Avicula, DAUTZENBERG 139.

†*Crenella cedrensis elongata* spp. n. Lance formation, Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128-A p. 25.

†*Inoceramus*, SPENGLER 418.

†*Leiopterinae* subfam. n. *Aviculidae*, MAILLIEUX Bul. Soc. geol. pal. Bruxelles 29 p. 130.

Meleagrina radiata, PELSENEER 342.
—M., GRUVEL 205.

†*Modiola* with *M. gemmalensis* sp. n. Lias, DE BRUN & VEDEL Bull. Soc. Sci. Nat. Nimes 41 pp. 91 & 98.—*M.* with *M. mingaudi*, *romani*, *jolyi* spp. n. Lias, DE BRUN & VEDEL Bull. Soc. Sci. Nat. Nimes 40 pp. 101–106.

Modiolarca trapezina, BISPINGHOFF 57.

Modiolus demissus, HANNA 212.

†*Modiolus schallerensis* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. Geol. Surv. 128A p. 25.

Musculus impressus figg., DALL U.S. Nation. Mus. Bull. 112 pl. iii figs. 6 & 7.

Mytilus edulis, DANIEL 138.

†*Perna*, DE BRUN & VEDEL 80.

Pinna fragilis, RITCHIE 374.

†*Pinna*, DE BRUN & VEDEL 80.

†*Rousseauia* gen. n. with *R. pseudocapuliformis* sp. n. Paleozoic, MAILLIEUX Bul. Soc. geol. pal. Bruxelles 29 pp. 141–143.

ARCAEA.

Arca, DAUTZENBERG 139.

†*Arca allodebilis*, sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 248.—*A. (Cucullaria) ozarkensis* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 p. 22.—*A.*, DE BRUN & VEDEL 80.

†*Cucullaea solenensis*, sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. geol. Surv. 128A p. 22.

Leda baccata, WINCKWORTH 496.

†*Leda chesterensis* sp. n. Basal Okaw and Golconda limestones, Illinois, WELLER Bull. geol. Surv. Illinois 41 p. 363.—*L. mansfieldi* sp. n. Lance formation, S. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. geol. Surv. 128A p. 20.—*L. alfurica*, *radiatelirata*, spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 248.

†*Nucula platynotus* N. *randolphensis*, spp. n. Basal Okaw and Golconda limestones, Illinois, WELLER Bull. geol. Surv. Illinois 41 pp. 361–362.

†*Parallelodon*, DE BRUN & VEDEL 80 & 81.

†*Trigonarca* ? *hancocki* Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. geol. Surv. 128A p. 23.

†*Trigonia flexicostata*, *inca*, spp. n. Cretaceous, Peru, FRITZSCHE Centralbl. Min. Stuttgart 1921 p. 275.—*T. inouyei*, *sakamotensis* spp. n. Lias, Japan, YEHARA J. Geol. Soc. Tokyo 28 pp. 8 & 10.

†*Yoldia thomi* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. geol. Surv. 128-A p. 21.

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Alasmidonta, ORTMANN 334.—*A.*, WENNIGER 482.

Anodonta cellensis, JAFFÉ 246 & 247.
—*A.*, WEISENSEE 480.—*A.*, WENNIGER 482.

Anodontites with *A. hyrioides*, *hasemani* spp. n. Brazil, ORTMANN Mem. Carnegie Mus. 8 pp. 587–629.

Arkansia wheeleri, ORTMANN 335.

†*Astarte blaedouensis* for *A. striata* Sowerby, *Astarte goniatala* for *A. angulata* Guéranger, nn. mut., p. 80, COSSMANN Rev. crit. paléozool. 25 1921.

†*Astarte thurnauensis* nom. mut. for *Venus undata* (*A. undata* d'Orbigny) p. 80, COSSMANN Rev. crit. paléozool. 25 1921.

†*Astarte* with *A. repelini* sp. n. Lias, DE BRUN & VEDEL Bull. Soc. Sci. Nat. Nîmes 40 pp. 108-109.

†*Cardinia*, DE BRUN & VEDEL 80 & 81.

†*Cardita doncieuxi, mengeli, agerensis* spp. n. Eocene of Eastern Pyrenees, VIDAL Butll. Inst. Catal. N. H. 20 1920 pp. 125-126.

Carunculina, ORTMANN 334.

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Castalina, ORTMANN 336.

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Crassatellites, IREDALE 240.

†*Cyrtodonta* ? *planumbona* sp. n. Lower Ordovician, Ottawa, WILSON Mus. Bul. Ottawa 33 1921 p. 52.

Diplodon with *D. hasemani, imitator, similimus, vicarius, decipiens, hildæ, mogymirim, berthæ, enno* spp. n. Brazil, ORTMANN Mem. Carnegie Mus. 8 pp. 472-548.

†*Diplodon pennsylvanicus, borealis, wanneri, carolus-simpsoni, yorkensis* spp. n. Trias, U.S.A., WANNER Proc. Acad. Nat. Sci. Philad. 1921 pp. 32-35.

Dromus, ORTMANN 334.

Elliptio, ORTMANN 333.

†*Eriphyla* ? *mandanensis* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. geol. Surv. 128-A p. 28.

Eurynia, ORTMANN 334.

Fossula, ORTMANN 336.

Fusconaia, ORTMANN 334.

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Lampsilis higginsii, GRIER 201.—L., WENNIGER 482.

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Margaritana margaritifera, BOYCOTT 75.

Medionidus, ORTMANN 334.

†*Modiolopsis compacta* sp. n. Lower Ordovician, Ottawa, WILSON Mus. Bul. Ottawa 33 1921 p. 53.

Monocondylæa with *M. obesa, holandi* spp. n. Brazil, ORTMANN Mem. Carnegie Mus. 8 pp. 572-587.

Mycetopoda Doello-Juradoi sp. n. Argentina, VON IHERING Physis Buenos Aires 5 p. 75.—M., ORTMANN 336.

†*Mycetopoda diluculi* sp. n. Trias, U.S.A., WANNER Proc. Acad. Nat. Sci. Philad. 1921 p. 36.

†*Opis*, DE BRUN & VEDEL 80.

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Spatha (Leptospatha) droueti var. n. roseotincta Cameroons, DAUTZENBERG Rev. Zool. Af. 9 pp. 174-175.

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Unio pictorum, ALKINS 6.

†*Unio amarillensis, gardneri, reesidei, baueri, neomexicanus, brimhallensis*, spp. n. Cretaceous, New Mexico, STANTON Prof. Paprs. U.S. Geol. Surv. 98 pp. 313-315.

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Galeomma peilei sp. n. Bombay, TOMLIN J. Conch. Leeds 16 p. 156.

†*Montacuta herberti, bicuspidata* spp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 pp. 20 & 21.

Rochefortia compressa fig., DALL U.S. Nation. Mus. Bull. 112 pl. iii fig. 1.

†*Rochefortia minuta* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 20.

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Cardium californiense fig., DALL U.S. Nation. Mus. Bull. 112 pl. xiv fig. 8.—*C. edule*, WINCKWORTH 495.—C., DAUTZENBERG 139.

†*Cardium alfuricum* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 248.—C. (*Nemocardium*), DE BRUN & VEDEL 80.

†*Conocardium chesterensis* sp. n. Basal Okaw and Golconda limestones, Illinois, WELLER Bull. Geol. Surv. Illinois 41 p. 366.

Protocardia richardsonii fig., DALL U.S. Nation. Mus. Bull. 112 pl. ii fig. 3.

Tridacna with *T. maxima* var. n. fossor Capricorn Group, HEDLEY Rec. Austr. Mus. 13 pp. 163-172.

Vesicomya (Callogonia) stearnsi fig., DALL U.S. Nation. Mus. Bull. 112 pl. i figs. 6 & 7.

CHAMACEA.

†*Africardia*, HENNIG 222.

†*Caprinidae*, HENNIG 222.

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†*Hippurites*, SPENGLER 418.

†A new genus unnamed of *Monopleuridae* HENNIG Zs. D. geol. Ges. Berlin Abhandl. 68 p. 454.

†*Sauvagesia degolyeri* sp. n. Cretaceous, Mexico, STANTON Proc. U.S. Nation. Mus. 59 p. 454.

CONCHACEA.

†*Basterotia ? prima* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 20.

Batissa, PRASHAD 364.

Calyptogena elongata fig., DALL U.S. Nation. Mus. Bull. 112 pl. iii fig. 3.

Chione meridionalis sp. n. Peru, OLDROYD Nautilus 34 p. 93.

Clementia maclellandi sp. n. S. Africa, TOMLIN J. Conch. Leeds 16 p. 215.

Cryptodon eutornus sp. n. S. Africa, TOMLIN J. Conch. Leeds 16 p. 215.

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†*Cyrena huarazensis* sp. n. Cretaceous, Peru, FRITZSCHE Centralbl. Min. Stuttgart 1921 p. 275.

Cyrena, PRASHAD 364.

†*Cytherea serana*, *lirevanida*, *supra-laevis* spp. n. Pliocene, Molluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 249.—C., WRIGLEY 503.

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†*Donax acutangula* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 22.

†*Dosinia steinmanni* sp. n. Pliocene, Molluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 248.

Eupera platensis sp. n. Argentina, DOELLO-JURADO Physis Buenos Aires 5 p. 73.

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†*Isocardia*, DE BRUN & VEDEL 80.

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Petricola pholadiformis, PELSENEER 342.

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†*Psammobia smithi*, *harrisi* spp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 pp. 23-24.

Psephidia cymata fig., DALL U.S. Nation. Mus. Bull. 112 pl. iii fig. 2.

†*Sanguinolaria (Nuttallia) orcutti* sp. n. Pleistocene, DALL West. Amer. Scientist 19 p. 17.

Solen ensis, SHEPARD 405.

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†*Tancredia*, DE BRUN & VEDEL 81.

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†*Trapezium*, DE BRUN & VEDEL 80.

†*Venerupis praeradiata* sp. n. Pliocene, Molluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 249.

Venus stutzeri Don. an earlier name for *Circe scripta* L. var. *personata* Desh., PILSBRY Nautilus 34 p. 141.

Villorita with *V. cornucopia* sp. n. India, PRASHAD Rec. Ind. Mus. 22 pp. 111-119.

MYACEA.

†*Corbula chacoensis* sp. n. Cretaceous, New Mexico, STANTON Prof. Paprs. U.S. Geol. Surv. 98 p. 316.—C., DE BRUN & VEDEL 80.—*C. lamellata, infantula*, spp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 249.

†*Cryptomya magna* sp. n. Pleistocene, DALL West Amer. Scientist 19 p. 17.

†*Ervilia lignitica* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 21.

†*Liopistha pervinquieri*, L. (*Psilomya*) *alta* spp. n. Cretaceous, Egypt, GRECO Palaeontogr. Italica 24 pp. 52 & 54.

Mactra chionia nom. n. for *M. complanata* Rve., TOMLIN J. Conch. Leeds 21 p. 226.—*M.*, DAUTZENBERG 139.

†*Mactra*, WRIGLEY 503.

Mya intermedia fig., DALL U.S. Nation. Mus. Bull. 112 pl. iv.—*M. arenaria*, COLLIP 116.

†*Mya klinghardti* sp. n. Tertiary, S.W. Africa, BÖHM Zs. D. Geol. Ges. B 71 p. 78.

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†*Panopea bellsensis* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 22.

†*Saxicava*, DE BRUN & VEDEL 81.

†*Saxicavella alabamensis* sp. n. Eocene, U.S.A. ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 21.

†*Schizothærus*, DALL 136.

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†*Spisula camaronis, longa* spp. n. Pleistocene, DALL West Amer. Scientist 19 p. 22.

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†*Lucina cedrensis*, Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. geol. Surv. 128A p. 30.—*L. serana* sp. n. Pliocene, Moluccas, FISCHER Centralbl. Min. Stuttgart 1921 p. 248.—*L. primoidea* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 19.—*L.*, DE BRUN & VEDEL 80.—*L.*, WRIGLEY 503.

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Bankia (Neobankia) zeteki Balboa, Canal Zone; *B. (Bankiella) mexicana* Sinaloa Mexico spp. n., BARTSCH Proc. Biol. Soc. Washington 34 pp. 26-27.

Bankiella subgen. n. *Teredidae*, BARTSCH Proc. Biol. Soc. Washington 34 p. 25.

†*Martesia recurva* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 19.

Neobankia subgen. n. *Teredidae*, BARTSCH Proc. Biol. Soc. Washington 34 p. 25.

Penitella, LAMY 269.

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†*Pholas miocaenica*, P. (*Zirfaea*) *dollfusi*, spp. n. Tertiary, France, DE MORGAN Bull. Soc. géol. 19 pp. 346 & 347.

†*Teredina neomexicana* sp. n. Cretaceous, New Mexico, STANTON Prof. Paprs. U.S. Geol. Surv. 98 p. 317.

Teredo (T.) parksi Oahu; *beachi* California; *T. (Teredothyra) dominicensis* Dominica spp. n., BARTSCH Proc. Biol. Soc. Washington 34 pp. 28-30.—*T.*, BÄRDARSON 30.—*T.*, KOFOID 260.

†*Teredo ringens* sp. n. Eocene, U.S.A., ALDRICH Bul. Amer. Pal. Ithaca 9 No. 37 p. 17.—*T.*, WETZEL 484.

Teredops subgen. n. *Teredidae*,
BARTSCH Proc. Biol. Soc. Washington
34 p. 26.

Teredora subgen. n. *Teredidae*,
BARTSCH Proc. Biol. Soc. Washington
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Teredothyra subgen. n. *Teredidae*,
BARTSCH Proc. Biol. Soc. Washington
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Xylophaga with *X. californica* Cali-
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†*Cumingia densilineata* sp. n.
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†*Macoma acolasta* sp. n. Pleistocene,
DALL West Amer. Scientist 19 p. 21.

†*Semele langdoniana*, *monroensis*
spp. n. Eocene, U.S.A., ALDRICH Bul.
Amer. Pal. Ithaca 9 No. 37 pp. 18-19.—
S. quentinensis sp. n. Pleistocene, DALL
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Tellina, DAUTZENBERG 139.

†*Tellina estellensis*, *bellsiana*, *semi-
rotunda*, *semipapyria* spp. n. Eocene,
U.S.A., ALDRICH Bul. Amer. Pal.
Ithaca 9 No. 37 pp. 17-18.—*T. serana*,
sp. n. Pliocene, Moluccas, FISCHER
Centralbl. Min. Stuttgart 1921 p. 249.

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†*Arcomya*, DE BRUN & VEDEL 80.

†*Ceromya*, DE BRUN & VEDEL 80.

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†*Goniomya*, DE BRUN & VEDEL 81.

†*Homomya*, BENDER 47.

†*Lyonsia*, DE BRUN & VEDEL 81.

†*Pholadomya haresi* sp. n. Lance
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128A p. 26.—*P.*, DE BRUN & VEDEL
81.

†*Pleuromya* with *P. musculoides*
var. n. *rhomboidea*, *P. m. crassa* mut. n.

Trias, Germany, BENDER Zs. D. geol.
Ges. Berlin Abh. 73 pp. 63-107.—
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†*Thracia quentinensis* sp. n. Pleisto-
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Egypt, GRECO Palaeontogr. Italica 24
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mut. for *Thracia lata* Moesch., COSS-
MANN in De Grossouvre Bull. soc.
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Dermatomya leonina, *tenuiconcha*
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†*Isocyprina*, DE BRUN & VEDEL
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†*Cephalopoda*, HOLTEDAHL 227a.—
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†*Acanthodiscus keideli* sp. n. Neo-
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Min. Stuttgart 1921 p. 142.

†*Aceneceras nisoides*, SPATH 414.

†*Acrochordiceras*, DIENER 152.

†*Agassicerias tenue* A. (*Onychoceras*)
differens spp. n. Upper Toarcian, S.E.
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†*Anasbirites*, SPATH 415.

†*Anasirenites*, DIENER 154.

†*Anatomites*, DIENER 149.

†*Anisoceras elatius*, WILCKENS 489.

†*Anolcites*, DIENER 154.

†*Aptychus* with *A. cristobalensis*,
cubanensis, *pimientensis* spp. n. ? Cre-
taceous, Cuba, O'CONNELL Amer. Mus.
Novit. New York 28 pp. 7-10.—*A.*
mirabilis sp. n. Upper Lias, Sicily,
FUCINI Palaeontogr. Italica 25 p. 191.

- Arcestes*, SPENGLER 418.
†*Arcestes*, DIENER 149.
†*Arctoceras*, SPATH 415.
†*Arthaberites*, DIENER 152.
†*Aspenites*, DIENER 152.
†*Aspidites madagascariensis* sp. n. Trias, Madagascar, DIENER Sitzber. Ak. Wiss. Wien Abt. I 123 1914 p. 914.
†*Aspidoceras*, SALFELD 386.
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†*Neritodomus subkidugallensis* sp. n. Jurassic, East Africa, RECK Centralbl. Min. Stuttgart 1921 p. 435.

†*Pedalion lloydi* sp. n. Lance formation, N. Dakota, STANTON & VAUGHAN Prof. Paprs. U.S. geol. Surv. 128A p. 24.

†*Plagiostoma dicolpophorum* sp. n. Jurassic, France, COSSMANN in De Grossouvre Bull. soc. géol. 18 p. 438.

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IX. CRUSTACEA

ARRANGED BY

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2.—Annandale, N. The aquatic fauna of Seistan. Rec. Ind. Mus. Calcutta **18** 1921 pp. 235–253.

3.—Arcangeli, A. Note Isopodologiche. Atti Soc. ital. sc. nat. **60** 1921 pp. 189–210 pl. vii.

4.—Arévalo, C. Un nuevo *Argulus* español. Bol. Soc. Esp. Hist. Nat. **21** 1921 pp. 108–110 text-fig.

5.—Bagnall, R. S. Notes and Records.—Records of local Woodlice. Vasculum Hexham **7** 1921 pp. 60–61.

6.—Balss, H. Über Stridulationsorgane bei dekapoden Crustaceen. Eine zusammenfassende Übersicht. Natw. Wochenschr. Jena neue folge **20** 1921 pp. 697–701 text-figs.

(N-17041 I) ♀

7.—Balss, H. Crustacea vi: Decapoda Anomura (Paguridea) und Brachyura (Dromiacea bis Brachygnatha i). Beitr. z. Kennt. d. Meeresfauna Westafrikas. Herausg. von W. Michaelson. **3** Hamburg 1921 pp. 39–67 text-figs.

8.—Banta, A. M. Selection in *Cladocera* on the basis of a physiological character. Carnegie Inst. Pub. Washington **305** 1921 pp. 1–170.

9.—Banta, A. M. An eyeless Daphnid, with remarks on the possible origin of eyeless cave animals. Science New York N.Y. **53** 1921 pp. 462–463.

10.—Banta, A. A convenient culture medium for Daphnids. Science New York N.Y. **53** 1921 pp. 557–558.

11.—Baumann, H. Das Gefäßsystem von *Astacus fluviatilis* (*Potamobius astacus* L.). Ein Beitrag zur Morphologie der Decapoden. Zs. wiss. zool. Leipzig **118** 1919 Hft. 2. pp. 246–312 text-figs.

- 12.—Beauchamp, P. de and Lami, R. La Bionomie intercotidale de l'île de Brehat. Bul. sci. France Belgique Paris 55 1921 pp. 184-238 pls. vi-vii.
- 13.—Bell, A. Notes on the later tertiary Invertebrata. Ann. Rep. Yorks. Phil. soc. Yorks 1920 1921 pp. 3-9.
- Beresford, D. R. Pack- vide Pack-Beresford.
- 14.—Bigalke, R. On the habits of the crab *Dotilla fenestrata*, Hilgendorf, with special reference to the mode of feeding. S. Afric. J. Nat. Hist. 3 1921 pp. 205-209.
- 15.—Birge, E. A. and Juday, C. A limnological reconnaissance of West Okoboji. Bul. Lab. Nat. Hist. Univ. Iowa City 9 1921 pp. 47-49.
- 16.—Böhm, J. Zur Fauna des Emscher bei Solst. Zs. D. geol. Ges. Berlin 71 B 1919 pp. 86-88.
- 17.—Boone, Pearl L. Report on the Tanaidacea and Isopoda collected by the Barbados-Antigua expedition from the University of Iowa in 1918. Univ. Iowa Stud. Iowa City 9 No. 5 1921 pp. 91-98 pl. i.
- 18.—Borner, L. Die Bodenfauna des St. Moritz-Sees. Eine monographische Studie. Arch. Hydrobiol. Stuttgart 13 1921 Hft. 2 pp. 209-281 pls. i, ii text-figs.
- 19.—Borradaile, L. A. A note on the mouth-parts of certain Crustacea. Proc. Cambridge Phil. Soc. 20 1921 pp. 478-479.
- 20.—Brian, A. A proposito di un Isopodo parassita dell' *Atherina mochon* Cuv. e Val. Monitore zool. ital. Firenze 32 1921 pp. 20-24 text-figs.
- 21.—Broch, H. Anatomical studies on *Anelasma* and *Scalpellum*. K. Norske Vidensk. Selsk. Skrift. Trondhjem 1918 1919 No. 1 pp. 1-28 pls. i-v.
- 22.—Bryan, W. A. A Monograph of Marcus Island. Occ. Paprs. Bernice Pauahi Bishop Mus. Honolulu H. I. 2 1902 1903 pp. 118-119.
- 23.—Busch, W. Biologische untersuchungen über die Copepoden der Kieler Förde. Arch. Natg. Berlin 87 A 1921 Hft. 2 pp. 195-275.
- 24.—Calman, W. T. Notes on Marine Wood-boring Animals.—ii. Crustacea. Proc. Zool. Soc. London 1921 1921 pp. 215-220.
- 25.—Cannon, H. G. The early development of the summer egg of a Cladoceran (*Simocephalus vetulus*). Q. J. Microsc. Sci. London 65 1921 pt. 4 pp. 627-642 pl. 25.
- 26.—Cantacuzène, J. Sur l'existence dans le sérum de *Maia squinado* d'une substance antagoniste empêchant ou retardant l'hémolyse. C. R. soc. biol. Paris 85 1921 pp. 970-971.
- Cantell vide Nilsson-Cantell, C. A.
- 27.—Cayeux, L. Introduction à l'étude pétrographique des roches sédimentaires. Mem. Carte géol. détaillée France 1916 pp. 439-442 pl. xlii.
- 28.—Chapman, F. *Ostracoda*, in Australasian Antarctic Expedition, 1911-14, Scientific Reports Series C. Zoology and Botany 5 1919 Pt. 7 pp. 5-45 pls. xxi-xxii.
- 29.—Chatton, E. Fausse et vraie myogénèse chez les Copepodes pélagiques. Erreur due à la méconnaissance de péridiniens parasites coelomiques. C. R. Acad. Sci. Paris 172 1921 No. 23 pp. 1441-1443.
- 30.—Chilton, C. Two examples of abnormal antennae in the Crustacea *Amphipoda*. Ann. Mag. Nat. Hist. London ser. 9 8 pp. 116-118 text-figs.
- 31.—Chilton, C. Report on the Amphipoda obtained by the F.I.S. "Endeavour" in Australian seas. Biol. Results F.I.S. "Endeavour" 1909-14 Sydney 5 pt. 2 1921 pp. 33-92 text-figs.
- 32.—Chilton, C. Fauna of the Chilka Lake—*Amphipoda*. Mem. Ind. Mus. Calcutta 5 1921 No. 8 pp. 521-558 text-figs.
- 33.—Chilton, C. A small collection of *Amphipoda* from Juan Fernandez, in Skottsberg, C. The Natural History of Juan Fernandez and Easter Island. Uppsala 1921 pp. 81-92 text-figs.
- Chopra, B. vide Kemp, S.
- 34.—Churchill, E. P., Jnr. Life History of the Blue Crab. Bul. Bur. Fish. Washington 36 1921 pp. 95-128 pls. xlvii-ly.

- 35.—Clark, F. W. and Wheeler, W. C. The inorganic constituents of marine invertebrates. Prof. Paprs. U.S. geol. Surv. Washington 102 1917 pp. 1-56.
- 36.—Clarke, J. M. Organic dependence and Disease. Their origin and significance. New York State Mus. Bul. Albany 221 222 1919 1921 pp. 1-113 pls.
- 37.—Cobbold, E. S. The Cambrian horizons of Comley (Shropshire) and their *Brachiopoda*, *Pteropoda*, *Gastropoda*, etc. Q. J. Geol. Soc. London 76 1921 pp. 325-386 pls. xxi-xxiv.
- 38.—Collinge, W. E. A preliminary study of the structure and function of the cutaneous glands in the Terrestrial Isopoda. Ann. Mag. Nat. Hist. Ser. 9 7 1921 pp. 212-222 pls. ii-iii text-figs.
- 39.—Colosi, G. Un nuovo crostaceo fossile: "*Heteroglyphaea paronae*." Atti Acc. sc. Torino 56 1921 pp. 45-48 text-figs.
- 40.—Colosi, G. Contributo alla conoscenza degli Entomostrachi libici. Monitore zool. ital. Firenze 31 1921 pp. 120-124 text-figs.
- 41.—Colosi, G. Un Potamoinde nel Sinai. Natura Milano 12 1921 p. 205.
- 42.—Cotte, J. Recherches sur le chromotropisme des Pagures. C. R. soc. biol. 84 1921 pp. 553-555.
- Cooper, J. vide Omer-Cooper.
- 43.—Coutière, H. No. x.—Les espèces d'Alpheidae rapportées de l'océan Indien par M. J. Stanley Gardiner. (Percy Sladen Trust Expedition to the Indian Ocean in 1905 under the leadership of Mr. J. Stanley Gardiner, M.A., vol. vi.) Trans. Linn. Soc. London 2nd Ser. Zool 17 pt. 4 pp. 413-441 pls. lx-lxiv.
- 44.—Crampton, G. C. The phylogenetic origin of the mandibles of insects and their Arthropodan relatives—a contribution to the study of the evolution of the Arthropoda. J. New York Ent. Soc. 29 1921 pp. 63-99 pls. vi-viii text-figs.
- 45.—Crampton, G. C. The origin and homologues of the so-called "Superlinguae," or "Paraglossae" (Parag-
- naths) of insects and related Arthropods. Psyche Boston Mass. 28 1921 pp. 84-92 pl. v.
- 46.—Crampton, G. C. A comparison of the terminal abdominal structures of insects and crustacea. Ent. News Philadelphia 32 1921 pp. 257-264 pl. v.
- 47.—Crampton, G. C. Preliminary note on the interpretation of Insectan and Myriopodan structures through a comparison with the structures of *Crustacea*. Trans. Ent. Soc. London 1920 1921 pp. 340-346.
- 48.—Cummins, H. Spring migration in the crayfish, *Cambarus argillicola* Faxon. Trans. Amer. Microsc. Soc. Menasha Wis. 40 1921 pp. 28-30.
- 49.—Dehorne, Lucienne. Conditions du développement de l'œuf durable chez les Phyllopoques. C. R. Acad. sci. Paris 172 1921 No. 26 pp. 1691-1693.
- Demoll, R. vide Versluys, J.
- 50.—Doello-Jurado. Algunos Cirripedios del Museo Nacional de Buenos Aires. Physis Buenos Aires 5 1921 No. 19 p. 61.
- 51.—E. B. P. Botanical and Zoological notes on excursions during the Reading congress. Zoological. S.E. Nat. London 1921 1921 p. liii.
- 52.—Ekman, S. Allgemeine bemerkungen über die Tiefenfauna der Binnenseen. Intern. Rev. Hydrobiol. Leipzig 8 1917 Hft. 2 pp. 113-124.
- 53.—Ekman, S. Studien über die marinen Relikte der nord-europäischen Binnengewässer. iv und v, vi. Intern. Rev. Hydrobiol. Leipzig 8 1918 Hft. 4 pp. 321-337; Heft. 5 pp. 477-528.
- 54.—Evans, W. E. A rare crab (*Pirimela denticulata*) in the Firth of Forth. Scot. Nat. Edinburgh 1921 1921 pp. 183-184.
- 55.—Fasten, N. Studies on Parasitic Copepods of the genus *Salmincola*. Amer. Nat. New York 55 1921 pp. 449-456.
- 56.—Fischer, P. Sur un nouveau Crustacé Décapode des terrains Jurasiques. Bul. Mus. Paris 1921 1921 pp. 377-380 text-fig.
- 57.—Foster, N. H. *Armadillidium vulgare*. Irish Nat. Dublin 30 1921 pp. 61-62.

58.—Friedenfelt, T. Zur Frage der Berechtigung relativer Massangaben in der Cladoceren-Forschung. Intern. Rev. Hydrobiol. Leipzig 9 1921 Hft. 3-4 pp. 305-310.

59.—Fritzsche, H. Studien über Schwankungen des osmotischen Druckes der Körperflüssigkeit bei *Daphnia magna*. (Mit besonderer Berücksichtigung der Anpassungserscheinungen.) Intern. Rev. Hydrobiol. 8 1917 Hft. 1 pp. 22-80, Hft. 2 pp. 125-203, text-figs.

60.—Früchtl, F. Planktoncopepoden aus der nördlichen Adria. Sitzber. Ak. Wiss. Wien 129 1920 Abth. 1 pp. 463-509 text-figs.

61.—Ghigi, A. Ricerche sui *Notostraci* di Cirenaica e di altri paesi del Mediterraneo. Atti soc. ital. sc. nat. Milano 60 1921 pp. 161-188 pl. vi text-figs.

62.—Gianferrari, L. Le Acartie della spedizione "Valdivia." Natura Milano 12 1921 pp. 14-30 charts.

63.—Gortner, R. A. and Harris, J. A. Notes on the occurrence of *Gammarus limnaeus* Smith in a saline habitat. Science New York N.Y. 53 1921 pp. 460-462.

64.—Gravier, C. Sur deux espèces de Cirripèdes du genre *Acasta* Leach vivant à la Côte française des Somalis. Bul. Mus. Paris 1921 1921 pp. 353-357 text-figs.

65.—Gravier, C. Sur un Décapode Macroure des mers indo-pacifiques (*Hymenocera elegans* Heller). Bul. Mus. Paris 1921 1921 pp. 424-427 text-fig.

66.—Gravier, C. Note sur deux Cirripèdes de la Côte française des Somalis. Bul. Mus. Paris 1921 1921 pp. 428-431 text-figs.

67.—Grobbsen, K. Der Schalen-schlussmuskel der dekapoden Crustaceen, zugleich ein Beitrag zur Kenntnis ihrer Kopfmuskulatur. Anz. Ak. Wiss. Wien 54 1917 pp. 197-198.

68.—Gurney, R. Two new British Entomostraca: *Alona protzi*, Hartwig, and a new species of *Mesochra* in Norfolk. Ann. Mag. Nat. Hist. London Ser. 9 7 1921 pp. 236-243 text-figs.

69.—Gurney, R. Some new or rare British Crustacea. Ann. Mag. Nat. Hist. London Ser. 9 8 1921 pp. 644-650 text-figs.

70.—Gurney, R. Notes on some Irish Entomostraca. Irish Nat. Dublin 30 1921 pp. 17-20.

71.—Gurney, R. Freshwater Crustacea collected by Dr. P. A. Buxton in Mesopotamia and Persia. J. Bombay Nat. Hist. Soc. 27 1921 pp. 835-843 pls. i-ii text-figs.

72.—Haack, Margarete. Zur ausseren Morphologie einiger Daphniden. Intern. Rev. Hydrobiol. Leipzig 8 1918 Hft. 4 pp. 338-393; 1919 Hft. 5 pp. 417-467 text-figs.

73.—Haan, J. A. B. de. Phototaktische Bewegungen von Tieren bei doppelter Reizquelle. Biol. Centralbl. Leipzig 41 1921 pp. 395-413.

74.—Haempel, O. Zur Kenntnis einiger Alpanseken, mit besonderer Berücksichtigung ihrer biologischen- und Fischerei-Verhältnisse. Intern. Rev. Hydrobiol. Leipzig 8 1918 Hft. 3 pp. 225-306 pls. i-ii text-figs.

75.—Hansen, H. On some Malacostracous Crustacea (*Mysidacea*, *Euphausiacea*, and *Stomatopoda*) collected by Swedish Antarctic Expeditions. Ark. Zool. Stockholm 13 1921 No. 20 pp. 1-9.

76.—Hansen, H. J. Studies on Arthropoda:—I. Copenhagen 1921 80 pp. pls. i-iv.

Harris, J. A. vide Gortner, R. A.

77.—Harvey, E. N. Is the luminescence of *Cypridina hilgendorfi* an oxidation? Amer. J. Physiol. Baltimore 51 1920 pp. 580-587.

78.—Herr, O. Die Phyllopodenfauna der preussischen Oberlausitz und der benachbarten Gebiete. Abh. natf. Ges. Görlitz 28 1917 pp. 1-162 text-figs.

79.—Heyde, H. C. van der. Über die Lernfähigkeit der Strandkrabbe (*Carcinus maenas* L.). Mit einer kritischen Erörterung über das Lernen im Labyrinth im Allgemeinen. Biol. Centralbl. Leipzig 40 1920 pp. 503-514.

Huntsman, A. G. vide Willey, A.

- Huxley, J. S. *vide* Sexton, E. W.
- 80.—Johansen, F. The larger freshwater crustacea of Canada and Alaska. *Canad. Field Nat. Ottawa* **34** 1920 pp. 126-132, 145-148; **35** 1921 pp. 21-30, 45-47, 88-94.
- 81.—Johansen, F. Freshwater Crustacea from Canada. *Canad. Field Nat. Ottawa* **35** 1921 pp. 36, 99-100.
- Juday, C. *vide* Birge, E. A.
- 82.—Kanda, S. Physico-chemical studies on Bioluminescence. i. On the Luciférine and Luciférase of *Cypridina hilgendorfi*. ii. The production of light by *Cypridina hilgendorfi* is not an oxidation. *Amer. J. Physiol. Baltimore* **50** 1920 pp. 544-573.
- 83.—Keilin, D. On some Dipterous larvae infesting the branchial chambers of Land-crabs. *Ann. Mag. Nat. Hist. London ser. 9* **8** 1921 pp. 601-608.
- 84.—Kemp, S. and Chopra, B. Notes on *Stomatopoda*. *Rec. Ind. Mus. Calcutta* **22** 1921 pp. 297-311 text-figs.
- 85.—Klie, W. Neuere Anschauungen über die Systematik der Copepoden mit besonderer Berücksichtigung der Cyclopoidae des Süßwassers. *Intern. Rev. Hydrobiol. Leipzig* **8** 1918 Hft. 4 pp. 398-402.
- 86.—Klugh, A. B. Notes on Canadian Entomostraca. *Canad. Field Nat. Ottawa* **35** 1921 pp. 72-73.
- 87.—Kofoid, C. A. The marine borers of the San Francisco Bay region in Report on the San Francisco Bay marine piling survey. (S.F. Bay Mar. piling C'ttee of Amer. Wood-preservers Assoc.). *San Francisco* 1921 pp. 50-61 pls. xxxi-xxxv.
- 88.—Kollman, M. Sur les premières phases du développement des leucocytes des Crustacés. *C. R. soc. biol. Paris* **84** 1921 pp. 811-813.
- 89.—Kraatz, W. C. A preliminary general survey of the macrofauna of Mirror Lake on the Ohio State University Campus. *Ohio J. Sci. Columbus* **21** 1921 pp. 137-182.
- 90.—Krausse, A. Über ein konstantes Vorkommen von *Lepidurus productus* Bosc. *Arch. Natg. Berlin* **82 A** Hft. 10 1918 pp. 169-171.
- 91.—Kreis, H. A. Die Jöriseen und ihre postglaziale Besiedelungsgeschichte. *Intern. Rev. Hydrobiol. Leipzig* **9** 1920 Hft. 3 pp. 241-288; 1921 Hft. 5 pp. 451-490 3 pls.
- 92.—Labbé, A. Sur des fécondations hétérogènes. *C. R. Acad. sci. Paris* **173** 1921 pt. 14 pp. 942-945.
- Lami, R. *vide* Beauchamp, P. de.
- Lang, H. *vide* Rathbun, Mary J.
- 93.—Lantzsch, K. Bemerkungen und Zahlen zur Pütter'schen Hypothese. *Biol. Centralbl. Leipzig* **41** 1921 pp. 122-134.
- 94.—La Vaulx, R. de. L'intersexualité chez un crustacé cladocère, *Daphnia atkinsoni* Baird. *Bul. sci. France Belgique Paris* **55** 1921 pp. 1-86 text-figs.
- 95.—Leder, H. Einige Beobachtungen über das Winterplankton im Triester Golf (1914). *Intern. Rev. Hydrobiol. Leipzig* **8** 1917 Hft. 1 pp. 1-21.
- 96.—Leidhold, C. Devon-fossilien von der bithynischen Halbinsel (Kleinasien). *Zs. D. geol. Ges. Berlin* **69 A** 1917 pp. 308-347 pls. xi-xiii.
- 97.—Leim, A. H. A new species of *Spirontocaris* with notes on other species from the Atlantic coast. *Trans. Canad. Inst. Toronto* **13** 1921 pp. 133-145 pls. ii-vi.
- 98.—Lewin, L. and Stenger, E. Der Farbstoff der Mitteldarmdrüse des Flusskrebse. Ein Beitrag zur Spektroskopie der Körpersäfte wirbelloser Tiere. *Arch. ges. physiol. Berlin* **178** 1920 pp. 80-90 text-figs.
- 99.—Lindner, E. Ein Beitrag zur Kenntnis der Ostracodenfauna Polens mit zwei Neubeschreibungen. *Abh. Senckenb. Ges. Frankfurt a. M.* **37** 1920 Hft. 1 pp. 25-29 pl. i text-fig.
- 100.—Loeb, L. The specific adaptation between body fluids and blood cells in Invertebrates. *J. Med. Res. Boston* **42** 1921 pp. 277-288.
- 101.—Lysholm, B. and Nordgaard, O. *Copepoda* collected on the cruise of the M.S. Armauer Hansen in the North Atlantic, 1913. *Bergens Mus. Aarb. 1918-19* 1921 Hft. 1 No. 2 pp. 1-37.

102.—Man, J. G. de. Sur quelques anomalies observées chez deux espèces du genre *Pinnotheres* Latr. de l'Archipel Indien. Bul. sci. France Belgique Paris 55 1921 pp. 260-265 pl. viii.

103.—Man, J. G. de. On three macrurous decapod Crustacea, one of which is new to science. Zool. Meded. Leiden 1921 1921 Deel vi pp. 92-96 text-figs.

104.—Marukawa, H. Plankton list and some new species of Copepods from the northern waters of Japan. Bul. Inst. Ocean. Monaco 384 1921 pp. 1-13 pls. i-iv chart.

105.—Matteotti, A. Ricerche anatomiche ed istologiche sullo stomaco di *Potamon edule* (Latr.). Bul. soc. ent. Ital. Firenze 53 1921 pp. 3-18 pl. i.

106.—McLean, A. J. Effects of Thyroid and Iodine feeding upon the metamorphosis of two species of crab. Publ. Puget Sound Biol. St. Seattle 3 1921 pp. 93-100 pls. xv-xvi.

107.—Mercier, L. A propos de l'hôte de *Leposiphilus labrei* Hesse. C. R. soc. biol. Paris 85 1921 pp. 897-899.

108.—Moberg, E. G. Horizontal distribution of the Zooplankton in Devil's Lake, North Dakota. Intern. Rev. Hydrobiol. Leipzig 9 1920 Heft. 1-2 pp. 154-159; Hft. 3-4 pp. 289-304.

109.—Montgomery, S. K. Some *Hymenosomidae* from the Swan River. J. R. Soc. West Austral. Perth 6 pt. 2 1919-20 1921 pp. 93-96.

110.—Moreira, C. Faune carcinologique de l'île de la Trindade. Bul. soc. zool. Paris 45 1920 pp. 125-132 text-figs.

111.—Morgan, T. H. Variation in juvenile Fiddler crabs. Amer. Nat. New York 55 1921 pp. 82-83.

112.—Name, W. G. van. Isopods collected by the American Museum Congo expedition. Bul. Amer. Mus. Nat. Hist. New York 43 1920-1921 pp. 41-108 text-figs.

113.—Nilsson-Cantell, C.-A. Cirripeden-Studien. Zur Kenntnis der Biologie, Anatomie und Systematik dieser Gruppe. Zool. Bidr. Uppsala 7 1921 pp. 75-378 pls. i-iii text-figs.

Nordgaard, O. vide Lysholm, B.

114.—Nutting, C. C. Barbados-Antigua expedition. Narrative and preliminary report of a zoological expedition from the University of Iowa to the Lesser Antilles under the auspices of the Graduate College. Bull. Lab. Nat. Hist. Univ. Iowa City 8 1919 pp. 72-79, 180-187.

115.—Omer-Cooper, J. *Janiropsis parva*. A new species of Isopod from Fanning Island. Proc. Bournemouth Nat. Sci. Soc. 12 1921 pp. 79-82 text-fig.

116.—Pack-Beresford, D. R. Some records of wood-lice. Irish Nat. Dublin 30 1921 p. 57.

117.—Pearse, A. S. Crustacea from Lake Valencia, Venezuela. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 459-462 text-figs.

118.—Pérez, C. Sur un Céponien nouveau, *Onychocepon harpax* (n. g., n. sp.), parasite branchial d'un Pinnothère. C. R. Acad. sci. Paris 173 1921 No. 1 pp. 59-61 text-figs.

119.—Pesta, O. Kritische Revision der Branchipodidensammlung des Wiener naturhistorischen Staatsmuseums. Ann. Nathist. Mus. Wien 34 1921 pp. 80-98 text-figs.

120.—Pesta, O. Bemerkungen zu einigen Langusten (Palinuriden) und ihrer geographischen Verbreitung. Anz. Ak. Wiss. Wien 52 1915 pp. 58-59.

121.—Pesta, O. Notiz über einige für die Fauna der Adria neue und bisher noch wenig bekannte Amphipodenarten. Anz. Ak. Wiss. Wien 55 1918 pp. 181-183.

122.—Pilsbry, H. A. The Sessile Barnacles (Cirripedia) contained in the collections of the U.S. National Museum, including a monograph of the American species. Bul. U.S. Nat. Mus. Washington 93 1916 (366 pp.) 76 pls. text-figs.

123.—Pilsbry, H. A. Barnacles of the San Juan islands, Washington. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 111-115 pl. xx text-figs.

124.—Poisson, R. *Cephaloidophora echinogammari* n. sp. Grégarine parasite du tube digestif d'*Echinogammarus berilloni* Catta. Répartition géographique de ce gammaride. Remarque sur *Frenzelina mercieri* n. sp. C. R. soc. biol. 84 1921 pp. 73-75.

- 125.—Poisson, R. Grégarines de Crustacés Amphipodes. Sur les Grégarines parasites du tube digestif du *Gammarus pulex*. C. R. soc. biol. Paris 85 1921 pp. 403-406.
- 126.—Przibram, H. Transitiäre Scherenformen der Winkerkrabbe, *Gelasimus pugnax* Smith. Anz. Ak. Wiss. Wien 52 1915 p. 343.
- 127.—Rathbun, Mary J. On intersexes in Fiddler crabs. Amer. Nat. New York 55 1921 pp. 80-82.
- 128.—Rathbun, Mary J. The Brachyuran crabs collected by the American Museum Congo expedition, 1909-1915. (Ecological and other notes by Lang, H.) Bul. Amer. Mus. Nat. Hist. New York 43 1920-1921 pp. 379-468 pls. xv-lxiv text-figs. map.
- 129.—Rathbun, Mary J. New species of crabs from Formosa. Proc. Biol. Soc. Washington 34 1921 pp. 155-156.
- 130.—Rathbun, Mary J. Report on the Brachyura collected by the Barbados-Antigua Expedition from the University of Iowa in 1918. Univ. Iowa Stud. Iowa City 9 No. 5 1921 pp. 65-90 pls. i-iii.
- 131.—Richardson, L. Remains of Macrurous and Brachyurous Crustacea in the Inferior Oolite of the Stonesfield (Oxon.)-Burton-Bradstock (Dorset) District. Proc. Cotteswold Nat. F. Cl. 20 1921 pp. 243-244.
- 132.—Robert, H. Contribution à l'étude du Zooplancton du lac de Neuchâtel. Bul. soc. sci. nat. Neuchâtel 45 1919-20 75 pp. and tables.
- 133.—Romijn, G. Das Geschlecht *Iliocryptus* G. O. Sars. Intern. Rev. Hydrobiol. Leipzig 8 1919 Hft. 5 pp. 529-539 pls. i-ii text-figs.
- 134.—Rose, M. Recherches biologiques sur le Plankton. Bul. Inst. Ocean. Monaco 385 1921 pp. 1-16.
- 135.—Rosenkrantz, A. Craniakalk fra Kjøbenhavns Sydhavn. Com. Paleont. Mus. Mineral Geol. Univ. Copenhagen 16 1920 pp. 1-68 pls. i-ii (with resumé in French).
- 136.—Roux, J. Süßwasserdekapoden von den Aru- und Kei-Inseln. Abh. Senckenb. Ges. Frankfurt-a-M. 35 1920 Hft. 3 pp. 318-351 text-figs.
- 137.—Roux, J. Crustacés. in Herderschee, A. F. Nova Guinea Leiden 1921 13 pp. 585-606 pl. xvi.
- 138.—Sars, G. O. An account of the Crustacea of Norway with short descriptions and figures of all species. 7 *Copepoda* (suppl.) pts. 9-10 pp. 93-114 pls. lxiv-lxxvi; 8 pts. 1-6 suppl. pp. 1-91 pls. i-xxxvii Bergen 1921.
- 139.—Schindewolf, O. H. Studien aus dem Marburger Buntsandstein i, ii. Senckenbergiana Frankfurt a. M. 3 1921 pp. 33-49.
- 140.—Schmitt, W. L. The marine Decapod Crustacea of California. Univ. Cal. Pub. Zool. Berkeley 23 1921 pp. 1-470 pls. i-l text-figs charts and appendices.
- 141.—Selbie, C. M. The Decapoda Reptantia of the Coasts of Ireland. Part ii.—*Paguridea*. Fisheries, Ireland, Sci. Invest. Dublin 1921 1 1921 pp. 1-68 pls. i-ix.
- 142.—Sexton, E. W. and Huxley, J. S. Intersexes in *Gammarus chevreuxi* and related forms. J. Mar. Biol. Ass. Plymouth 12 1921 pp. 506-556 pls. i-ix text-figs.
- 143.—Shoemaker, C. R. Report on the Amphipods collected by the Barbados-Antigua expedition from the University of Iowa in 1918. Univ. Iowa Stud. Iowa City 9 No. 5 1921 pp. 99-102.
- 144.—Stack, J. Aquatic life: with special reference to *Entomostraca*. Amer. Midl. Nat. Notre Dame Indiana 6 1920 pp. 128-145.
- 145.—Standen, R. Notes on the Opossum shrimp (*Neomysis integer*, Leach), and its associated fauna in the Wirral. Lancs. Ches. Nat. 13 1921 pt. 11 pp. 19-21.
- 146.—Standen, R. The wood-lice and other Crustacea of Derbyshire and Staffordshire mainly from Dovedale and district. Lancs. Ches. Nat. 13 1921 pt. 7 pp. 130-138.
- 147.—Stebbing, T. R. R. Preliminary account of supposed new genus and species. Ann. Mag. Nat. Hist. ser. 9 8 1921 p. 626.
- 148.—Stebbing, T. R. R. Some Crustacea of Natal. Ann. Mus. Durban 3 1921 pp. 12-26 pls. i-v.

- 149.—Stebbing, T. R. R. South African Crustacea. [Part xi.] Ann. S. Afric. Mus. Cape Town 18 1921 pp. 453–468 pls. xiii–xx.
- Stenger, E. *vide* Lewin, L.
- 150.—Stephenson, K. *Tryphosa schneideri* an amphipod from Northern Norway new to science (fam. *Lysianassidae*). Tromsø Mus. Aarsh. 43 1920 1921 pp. 3–9 text-figs.
- 151.—Steuer, A. Über eine Lokalrasse der *Acartia* (*Odontacartia*) *pacificæ* Steuer von den Aru-Inseln. Abh. Senckenb. Ges. Frankfurt-a-M 35 1920 Hft. 3 pp. 255–257 text-fig.
- 152.—Straelen, V. van. Catalogue des crustacés décapodes des terrains tertiaires de la Belgique. Ann. Soc. Royale Zool. et Malac. Belgique 51 1921 pp. 111–131.
- 153.—Straelen, V. van. *Hoploparia corneti*, crustacé décapode nouveau de l'Yprésien supérieur de Cuesmes. Bul. soc. géol. paléont. hydr. Bruxelles 30 1920 pp. 136–138 text-fig.
- 154.—Straelen, V. van. Sur des crustacés du Jurassique de la Nièvre. Bul. soc. géol. paléont. hydr. Bruxelles 30 1920 pp. 139–142 pl. i.
- 155.—Tattersall, W. M. *Sacculina* and its effects on the host species. Ann. Rep. Trans. Manchester Microsc. Soc. 1920 1921 pp. 29–41.
- 156.—Tattersall, W. M. Crustacea. Pt. vi.—*Tanaidacea* and *Isopoda*. British Antarctic ("Terra Nova") Expedition, 1910. Natural History Report Zoology. 3 No. 8 1921 pp. 191–258 pls. i–xi.
- 157.—Tattersall, W. M. Report on the Stomatopoda and Macrurous Decapoda collected by Mr. Cyril Crossland in the Sudanese Red Sea. J. Linn. Soc. Zool. London 34 1921 pp. 345–398 pls. xxvii & xxviii.
- 158.—Tattersall, W. M. Sponges, Polyzoa, Hydroids and Crustacea from Lancashire and Cheshire. Lancs. Ches. Nat. 14 1921 pt. 2 pp. 9–11.
- 159.—Tattersall, W. M. Part vii.—*Mysidacea*, *Tanaidacea* and *Isopoda*, in Annandale, N. Zoological results of a tour in the Far East. Mem. Asiat. Soc. Bengal, Calcutta 6 1921 pp. 403–433 pls. xv & xvi.
- 160.—Terao, A. On the development of *Panulirus japonicus* (v. Siebold). Rep. Imp. Fish. Inst. Tokyo 14 1919 7 pp. pls. i–iv.
- 161.—Thompson, P. Freshwater prawns at Benfleet. Essex Nat. Stratford 19 1921 p. 328.
- 162.—Ubisch, M. von. Über die Segmentierung und die Anzahl der Beinpaare von *Cyclops*. Abh. Senckenb. Ges. Frankfurt-a-M. 37 1920 Hft. 1 pp. 34–36 pl. ii.
- van der Heyde, H. C. *vide* Heyde, H. C. van der.
- van Name, W. G. *vide* Name, W. G. van.
- van Straelen, V. *vide* Straelen, V. van.
- Vaulx, R. de la, *vide* La Vaulx, R. de.
- van Veen, J. E. *vide* Veen, J. E. van.
- 163.—Veen, J. E. van. The identity of the genera *Poloniella* and *Kloedenella*. Proc. sci. K. Akad. Wet. Amsterdam 23 1921 No. 7 pp. 993–996 1 pl.
- 164.—Verhoeff, K. W. Zur Kenntnis der Ligidien, Porcellioniden und Onisciden. Arch. Natg. Berlin 82 A Hft. 10 1918 pp. 108–169 pls. i–ii text-figs.
- 165.—Verhoeff, K. W. Zur Kenntnis der Gattungen *Porcellium* und *Armadillidium* in Deutschland. Arch. Natg. Berlin 83 A 1919 Hft. 1 pp. 1–36 text-figs.
- 166.—Verhoeff, K. W. Über augenlose Armadillidien und kritische Prüfung der Familie Armadillidiidae. Arch. Natg. Berlin 83 A Hft. 2 1919 pp. 160–170 text-figs.
- 167.—Verhoeff, K. W. Über die Larven, das Marsupium und die Bruten der *Oniscoidea*. Arch. natg. Berlin 83 A Hft. 12 1919 pp. 1–54 text-figs.
- 168.—Verhoeff, K. W. Über die Atmung der Landasseln, zugleich ein Beitrag zur Kenntnis der Entstehung der Landtiere. Zs. wiss. zool. Leipzig 118 1919 Hft. 3 pp. 365–447 pls. vii–viii text-fig.
- 169.—Verne, J. La méthode d'imprégnation de Del Rio-Hortega appliquée à l'étude du pigment des Crustacés. C. R. soc. biol. Paris 85 1921 pp. 806–808.

170.—Versluys, J. and Demoll, R. Die Verwandtschaft der Merostomata mit den Arachnida und den anderen Abteilungen der Arthropoda. Proc. Sci. K. Akad. Wet. Amsterdam 23 1921 pp. 739-765 text-figs.

171.—Waddington, H. J. Marine Fauna. Crustacea, in Morris, D. A Natural History of Bournemouth and District. Bournemouth 1914 pp. 222-227.

172.—Webb, Gladys E. The larvae of the Decapoda Macrura and Anomura of Plymouth. J. Mar. Biol. Ass. Plymouth 12 1921 pp. 385-417 pls. i-iv.

Wheeler, W. C. *vide* Clark, F. W.

173.—Willey, A. Arctic *Copepoda* in Passamaquoddy Bay. Proc. Amer. Acad. Arts Sci. Boston 56 1921 pp. 185-196.

174.—Willey, A. and Huntsman, A. G. Faunal notes from the Atlantic Biological station (1920). Canad. Field Nat. Ottawa 35 1921 pp. 1-7.

175.—Wilson, Alice E. The range of certain Lower Ordovician faunas of the Ottawa valley with descriptions of some new species. Mus. Bul. Ottawa 33 1921 pp. 19-57 pls. iv-vi text-figs.

176.—Wilson, C. B. *Argulidae* from the Shubenacadie river, Nova Scotia. Canad. Field Nat. Ottawa 34 1920 pp. 149-151 text-figs.

177.—Wilson, C. B. New species and a new genus of parasitic Copepods. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 1-17 pls. i-vii.

178.—Wilson, C. B. The North American semiparasitic Copepods of the genus *Clausidium*. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 425-431 pls. xciv-xcv.

179.—Wilson, C. B. Report on the Parasitic Copepoda collected during the survey of the Juan Fernandez Islands, 1916-1917, in Skottsberg, C. The Natural History of Juan Fernandez and Easter Islands, Uppsala 3 1920 pp. 69-74 pls. ii-iv.

180.—Withers, T. H. The "Cirripede" *Plumulites* in the Middle Ordovician rocks of Esthonia. Ann. Mag. Nat. Hist. London ser. 9 8 1921 pp. 123-127 text-figs.

181.—Wolf, J. P. Die Ostracoden der Umgebung von Basel. Arch. Natg. Berlin 85 A Hft. 3 1920 pp. 1-99 pls. i-iii text-fig.

182.—Wundsch, H. H. Beiträge zur Frage nach dem Einfluss von Temperatur und Ernährung auf die quantitative Entwicklung von Süßwasserorganismen. Zool. Jahrb. Jena Abt. Allg. Zool. 38 1921 Hft. 1 pp. 1-45 pls. i-v text-figs.

183.—Zimmer, C. Einige neue und weniger bekannte Cumaceen des Schwedischen Reichsmuseums. Ark. Zool. Stockholm 13 1921 9 pp. text-figs.

184.—Zimmer, C. Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia, 1910-13. xxvi.—Cumaceen. K. Svenska Vet.-Ak. Handl. Stockholm 61 1921 No. 7 13 pp. text-figs.

185.—Zimmer, C. Schizopoden des Hamburger Naturhistorischen (Zoologischen) Museums. Mitt. Nath. Mus. Hamburg 32 1915 pp. 159-182 text-figs.

186.—Zimmer, C. Mitteilung über Cumaceen des Berliner zoologischen Museums. Mitt. Zool. Mus. Berlin 10 1920 pp. 117-149 text-figs.

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X. ARACHNIDA

TO WHICH ARE ADDED

GIGANTOSTRACA (XIPHOSURA, TRILOBITA, EURYPTERIDA),
PANTOPODA, TARDIGRADA, PENTASTOMIDA, MYRIOPODA,
and PROTOTRACHEATA

ARRANGED BY

STEPHEN K. MONTGOMERY, B.A., B.Sc.

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GIGANTOSTRACA.

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1.—Brøgger, W. C. "Eocambrium." *Kjerulfia lata*. Norsk geol. Tidsskr. Kristiania 5 1920 pp. 378–380.

2.—Cayeux, L. Introduction à l'étude pétrographique des roches sédimentaires. Mem. Carte géol. détaillée France 1916 pp. 443–449 pl. xliii.

Cowper-Reed, F. R. *vide* Gardiner, C. I.

Demoll, R. *vide* Versluys, J.

3.—Edwards, D. J. Segmental activity in the heart of the *Limulus*. Amer. J. Physiol. Baltimore 52 1920 pp. 276–283.

4.—Gardiner, C. I. and Reed, F. R. Cowper. The Silurian rocks of May Hill. With an appendix on two Trilobites. Proc. Cotteswold Nat. F. Cl. Gloucester 20 1921 pt. 3 pp. 185–222 figs.

5.—Heritsch, F. Über eine *Dalmania* aus den Devonschichten von Tal bei Graz. Centralbl. Min. Stuttgart 1920 pp. 307–314 text-fig.

6.—Klouček, C. Nález trilobitů v d₁a. [Trilobitenfund in d₁a.] Sitzber. Böhm. Ges. Wiss. Prag 1914 1914 5 pp.

7.—Klouček, C. Neues über die Krusnáhora-Schichten (d₁a). Sencenbergiana Frankfurt-a-M. 3 1920 1921 pp. 55–58.

8.—Leidhold, C. Devon-fossilien von der bithynischen Halbinsel (Kleinasien). Zs. D. geol. Ges. Berlin 69A 1917 pp. 308–347 pls. xi–xiii.

9.—Loeb, L. On the precipitins in bloodsera of Arthropods. J. Med. Res. Boston 42 1921 pp. 269–275.

10.—Mailleux, E. Présence du *Tropidocoryphe barroisi* dans le Couvinien supérieur des environs de Hotton. Bul. soc. géol. paléont. hydr. Bruxelles 31 1921 p. 22.

11.—Raymond, P. E. A contribution to the description of the fauna of the Trenton group. Mus. Bul. Ottawa 31 1921 pp. 1–64 pls. ix–xi.

Reed, F. R. Cowper *vide* Gardiner, C. I.

12.—Størmer, L. Om nogen fossilfund fra etage 3aa ved Vaekkerø, Kristiania. Norsk geol. Tidsskr. Kristiania 6 1920 pp. 1–15 pls. i–ii text-figs.

13.—Versluys, J. and Demoll, R. Die Verwandtschaft der Merostomata mit den Arachnida und den anderen Abteilungen der Arthropoda. Proc. Sci. K. Akad. Wet. Amsterdam 23 1921 pp. 739–765 text-figs.

14.—Walter, O. T. Upper Cambrian Trilobites. Bul. Geol. Soc. Amer. New York 32 1921 p. 128.

15.—Wilson, Alice E. The range of certain Lower Ordovician faunas of the Ottawa valley with descriptions of some new species. Mus. Bul. Ottawa 33 1921 pp. 19–57.

II.—SUBJECT INDEX.

N. B.—The number in Clarendon, when not referring to a Volume, refers to the list of Titles.

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PANTOPODA.

I.—TITLES.

1.—Cole, L. J. Report on Pycnogonida collected by the Canadian Arctic expedition, 1913-1918. Rep. Canad. Arct. Exp. 1913-18 7 Pt. F 1921 6 pp.

2.—Loman, J. C. C. Pycnogoniden von Juan Fernandez in Skottsberg, C. The Natural History of Juan Fernandez and Easter Island, Uppsala 3 1920 pp. 137-144 text-figs.

3.—Waddington, H. J. Marine Fauna. *Pycnogonida*. in Morris, D. A Natural History of Bournemouth and district, Bournemouth, 1914 p. 227.

II.—SUBJECT INDEX.

Expeditions.—Canad. Arct. Exp.,
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(INCL. TARDIGRADA & PENTASTOMIDA)

I.—TITLES.

1.—Allen, W. E. A note on Longevity of Larval ticks. *J. Parasitology Urbana Ill.* 7 1921 p. 156.

2.—Barbour, T. Spiders feeding on small Cyprinodonts. [*Pisc.*] *Psyche Boston Mass.* 28 1921 pp. 131–132.

3.—Bates, L. B., Dunn, L. H. and St. John, J. H. Relapsing fever in Panama. The human tick, *Ornithodoros talaje*, demonstrated to be the transmitting agent of relapsing fever in Panama by human experimentation. *Amer. J. Trop. Med. Baltimore* 1 1921 pp. 183–210.

4.—Baudyš, E. Příspěvek k rozšíření mimočeských hálek. *Časopis Praze* 9 1912 pp. 29–33.

5.—Baudyš, E. Příspěvek k poznání hálek dolnorakouských. *Časopis Praze* 9 1912 pp. 118–120.

6.—Baudyš, E. Příspěvek k rozšíření hálek v Chorvatsku. *Časopis Praze* 10 1913 pp. 119–121.

7.—Baudyš, E. Příspěvek k rozšíření hálek na Moravě. *Časopis Praze* 11 1914 pp. 12–16.

8.—Baudyš, E. Několik zoocecidí z Dolních Rakous. *Časopis Praze* 12 1915 pp. 47–48.

9.—Baudyš, E. Zooecidie nové pro Čechy. *Časopis Praze* 13 1916 pp. 1–10; 14 1917 pp. 25–38; 15 1918 pp. 43–52.

10. Baudyš, E. Neue Gallenwirte aus Böhmen. *Soc. ent. Stuttgart* 31 1916 pp. 45–49 text-figs.; 32 1917 pp. 43–45.

11.—Baumann, H. Beitrag zur Kenntnis der Anatomie der Tardigraden (*Macrobotus hufelandii*) *Zs. wiss. zool. Leipzig* 118 1921 Hft. 4 pp. 637–652 text-figs.

12.—Berlese, A. Acari, Myriapoda, et Pseudoscorpiones hucusque in Italia reperta (Indici). *Redia Firenze* 14 1921 pp. 77–106.

13.—Berlese, A. Centuria quinta di Acari nuovi. *Redia Firenze* 14 1921 pp. 143–195.

14.—Berlese, A. Nuovo specie del gen. *Erythraeus*. *Redia Firenze* 14 1921 pp. 209–210.

Berlese, A. *vide* Troussart, E.

15.—Borner, L. Die Bodenfauna des St. Moritzer-Sees. Eine monographische Studie. *Arch. Hydrobiol. Stuttgart* 13 1921 pp. 209–281 pls. i, ii text-figs.

16.—Breijer, H. G. Notes from the Transvaal Museum. *Bul. S. Afric. Biol. Soc., Pretoria Ser. 1* 1 1918 pp. 22–24.

17.—Buxton, P. A. The external anatomy of the *Sarcoptes* of the horse. *Parasitol. Cambridge* 13 1921 pp. 114–145 pl. vii text-figs.

18.—Buxton, P. A. On the *Sarcoptes* of Man. *Parasitol. Cambridge* 13 1921 pp. 146–151 text-figs.

19.—Carbonell, J. J. Catálogo de las Terafosas Argentinas. *Prim. réun. Nac. soc. Argentina cienc. Nat. Buenos Aires* 1916 1919 pp. 426–432.

20.—Chamberlin, R. V. A new genus and a new species of Spiders in the group *Phrurolithaeae*. *Canad. Entomol. London Can.* 53 1921 pp. 69–70 text-fig.

21.—Chamberlin, R. V. Notes on the genus *Garypus* in North America (Pseudoscorpionida — Cheliferi da.) *Canad. Entomol. London Can.* 53 1921 pp. 186–191 pl. vii text-fig.

22.—Chamberlin, R. V. On some Arachnids from Southern Utah. *Canad. Entomol. London Can.* 53 1921 pp. 245–247 pl. x.

- 23.—Colledge, W. R. Water-bears or *Tardigrada*. Queensl. Nat. Brisbane 3 1921 pp. 28-29 figs.
- 24.—Cunliffe, N. Some observations on the biology and structure of *Ornithodoros moubata*, Murray. [Together with a note on the external characters which serve to differentiate the sexes, by Nuttall, G. H. F.] Parasitol. Cambridge 13 1921 pp. 327-347 pl. xvi text-figs.
- 25.—Dallman, A. A. Plant-galls (Zooecidia) of Cheshire. Lancs. Ches. Nat. 14 1921 pt. 2 pp. 50-70.
- 26.—Dalmás, Comte de. Monographie des araignées de la section des *Pterotricha* (Aran. Gnaphosidae). Ann. soc. Ent. Paris 89 1921 pp. 233-328 text-figs.
- 27.—Deichmann, Eilsabeth. Oversigt over de danske Theridier samt over Slaegten Dictyna (Aran.) (Sluttet). Ent. Med. Kjøbenhavn 13 1921 pp. 257-259.
- 28.—Denier, P. Notes sur la biologie de *Nemesiothele denieri* (E.S.). Bul. Mus. Paris 1921 pp. 351-352.
- 29.—Dickson, W. E. C. Mites as internal parasites of man. J. Trop. Med. London 24 1921 pp. 25-27.
- 30.—Dodd, S. Tick Paralysis. J. Comp. Path. Ther. Edinburgh 34 1921 pp. 309-323.
- 31.—Drake-Brockman, R. E. On an Epidemic of African tick fever among the troops in British Somaliland. Trans. Soc. Trop. Med. London 8 1915 p. 202.
- Dunn, L. H. *vide* Bates. L. B.
- Duvall, H. Muriel *vide* Newstead, R.
- 32.—E. B. P. Botanical and Zoological notes on the excursions during the Reading congress. Zoological. S. E. Nat. London 1921 1921 pp. lii-liii.
- 33.—Emerton, J. H. Notes on Canadian and Arctic Spiders. Psyche Boston Mass. 28 1921 pp. 165-168.
- 34.—Ewing, H. E. The genus *Trombicula* Berlese in America and the Orient. Ann. Ent. Soc. Amer. Columbus Ohio pp. 381-390 text-figs.
- 35.—Ewing, H. E. Studies on the Biology and Control of Chiggers. Bul. U.S. Dept. Agric. Washington 986 1921 pp. 1-19 text-figs.
- 36.—Ewing, H. E. New Nearctic spider mites of the family *Tetranychidae*. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 659-666 pl. cxv.
- 37.—Fage, L. Travaux scientifiques de l'armée d'Orient (1916-1918). Arachnides. Bul. Muséum Paris 1921 1921 pp. 96-102 173-177 227-232 text-figs.
- 38.—Fage, L. Sur quelque Araignées apneumones. C. R. Acad. Sci. Paris 172 1921 Pt. 10 pp. 620-622.
- 39.—Falconer, W. The spiders of Yorkshire. Naturalist London 1921 1921 pp. 84-86 177-180 201-204 313-316.
- 40.—Falconer, W. Plant gall foray at Leeds. Naturalist London 1921 1921 pp. 269-272.
- 41.—Froggatt, W. W. The Blue Oat Mite (*Notophallus bicolor*, n. sp.). Agric. Gaz. Sydney 32 1921 pp. 33-34 figs.
- 42.—Froggatt, W. W. Orchard and Garden Mites No. 2.—Spinning Mites (Family *Tetranychidae*). Agric. Gaz. Sydney 32 1921 pp. 130-135 text-figs.
- Gallagher, B. A. *vide* Ward, A. B.
- 43.—Garman, P. The European red mite (*Paratetranychus pilosus* Can. & Fanz.) in Connecticut. J. Econ. Ent. Concord 14 1921 pp. 355-356.
- 44.—Gedoelst, L. Un linguatulide nouveau parasite d'un batracien. Rec. Ind. Mus. Calcutta 22 1921 pp. 25-26.
- Gedoelst, L. *vide* also Rodhain, J.
- 45.—Gerhardt, U. Vergleichende Studien über die Morphologie des männlichen Tasters und die Biologie der Kopulation de Spinnen. (Aus dem zoologischen Institut der Universität Breslau). Versuch einer zusammenfassenden Darstellung auf Grund eigener Beobachtungen. Arch. Natg. Berlin 87 A Hft. 4 1921 pp. 78-247 pls. i-iii text-figs.
- 46.—Godfrey, R. False Scorpions. S. Afric. J. Nat. Hist. 2 1920 pp. 118-119.
- 47.—Hansen, H. J. Studies on Arthropoda 1 Copenhagen 1921 pp. 1-80 pls. i-iv.

48.—Harvey, Elsie J. Isle of Wight disease in Hive Bees. Experiments on Infection with *Tarsonemus woodi*, sp. n. Trans. R. Soc. Edinburgh 52 1921 pp. 765-767.

49.—Herrera, M. Los Escorpiones de Mexico. Mem. Soc. Ant. Alzate Mexico 39 1921 pp. 137-159 text-figs.

50.—Hewitt, J. On some Lizards and Arachnids of Natal. Ann. Mus. Durban 3 1921 pp. 3-11 text-figs.

51.—Hewitt, J. Notes on the Fauna of St. Croix Island. S. Afric. J. Nat. Hist. 2 1920 pp. 110-111.

52.—Hirst, S. On three new Parasitic Mites (*Leptus*, *Schöngastia* and *Demodex*). Ann. Mag. Nat. Hist. London Ser. 9 7 1921 pp. 37-39.

53.—Hirst, S. On the mite (*Acarapis woodi*, Rennie) associated with Isle of Wight Bee Disease. Ann. Mag. Nat. Hist. London ser. 9 7 pp. 509-519 text-figs.

54.—Hirst, S. Notes on Parasitic Acari. A. On the presence of a system of Tracheal tubes in the families *Sarcoptidae* and *Listrophoridae*. B. Note on the two valid species of the genus *Pesoptes* (*P. natalensis* and *P. communis*). J. Quekett Microsc. Cl. London 14 1921 pp. 229-236 text-figs.

55.—Hirst, S. On some new or little-known Acari, mostly parasitic in habit. Proc. Zool. Soc. London 1921 1921 pp. 357-378 text-figs.

56.—Houard, C. Galles d'Europe. Deuxième Série. Marcellia Avellino 17 1918 pp. 93-113.

57.—Houard, C. Les collections cecidologiques du laboratoire d'entomologie du Muséum d'Histoire Naturelle de Paris. Marcellia Avellino 17 1918 pp. 114-136.

58.—Hull, J. E. Some new mites. Vasculum Hexham 7 1921 pp. 17-20 text-figs.

59.—Jacobson, E. *Thomisus decipiens* (Forbes), a spider supposed to imitate the excrement of birds. Tijdschr. Ent. 'sGravenhage 64 1921 pp. 186-190 pl. xii.

60.—Joan, Teresa. Caso de ginandromorfismo en una Garrapata (*Am-*

bliomma neumanni Rib.). Prim. Reun. Nac. Soc. Argentina Cienc. nat. Buenos Aires 1916 1919 pp. 421-425 pl. xlii.

61.—Kew, H. W. *Chelifer scorpoides* Herm., a false-scorpion new to the Irish fauna. Irish. Nat. Dublin 30 1921 p. 62.

62.—Komárek, J. Zur Hydracarina-fauna des Berglandes Brdy (Böhmen). Arch. Hydrobiol. Stuttgart 13 1921 Hft. 2 pp. 299-306 text-figs.

63.—Kopstein, F. Die Skorpione des Indo-australischen Archips. mit Grundlage der in Hollandischen Sammlungen, vornahmlich des Rijks-museums in Leiden, vorhandenen Arten. Zool. Meded. Leiden 1921 1921 deel vi pp. 115-114 text-figs.

64.—Kraatz, W. C. A preliminary general survey of the macrofauna of Mirror Lake on the Ohio State University Campus. Ohio J. Sci. Columbus 21 1921 pp. 137-182.

65.—Krausse, A. "Milchtrinkende" Spinnen. Arch. Natg. Berlin 79 A 1914 Hft. 3 p. 118.

66.—Krausse, A. Zur Kenntnis der Verbreitung einiger Milben. Arch. natg. Berlin 82 A Hft. 4 1917 pp. 157-158.

67.—Krausse, A. Über einige einheimische Mäuse und einige bei Mäusen gefundene Milben. Arch. Natg. Berlin 82 A Hft. 11 1918 pp. 159-162.

68.—Krausse, A. Eine neue Borkenkäfermilbe, *Calvolia kneissli* m. von *Orthotomicus laricis* Fabr. Arch. natg. Berlin 83 A Hft. 10 1919 pp. 123-124 text-figs.

69.—Kreis, H. A. Die Jöriseen und ihre postglaziale Besiedelungsgeschichte. Eine faunistisch-biologische Studie. Intern. Rev. Hydrobiol. Leipzig 9 1920 Hft. 3 pp. 241-288; 1921 Hft. 5 pp. 451-490 3 pls.

70.—Lessert, A. de. Araignées du Kilimandjaro et du Mérou (suite). Rev. Suisse Zool. Genève 28 No. 17 1921 pp. 381-442 text-figs.

71.—Mello-Leitao. On the genus *Grammastola*, Simon. Ann. Mag. Nat. Hist. Ser. 9 7 1921 pp. 293-305.

- 72.—Mello-Leitao. On the genus *Lasiadora*, C. Koch. Ann. Mag. Nat. Hist. London Ser. 9 8 1921 pp. 337-350.
- 73.—Mercanton, P. L. Araignées cavernicoles des Mines de sel de Bex. Bul. soc. sci. nat. Lausanne 54 1921 p. 111.
- Morris, H. M. *vide* Newstead R.
- 74.—Morton, W. Notes sur *Otenyza (fodiens) sauvagesi*, la Mygale de Corse. Bul. soc. sci. nat. Lausanne 54 1921 pp. 113-115.
- 75.—Müller, A. Zur Kenntnis der Opilionenfauna des Urwaldes von Bialowie. Abh. Senckenb. Ges. Frankfurt-a-M. 37 1920 Hft. 1 pp. 71-81.
- 76.—Nalepa, A. Neue Gallmilben. Anz. Ak. Wiss. Wien 54 1917 pp. 52-53 151-153.
- 77.—Newstead, R. and Duvall, H. Muriel. Bionomic, morphological and economic report on the Acarids of stored grain and flour. (Appendices by Beattie, J. M., and Humphries, A. E.) Rep. Grain Pests (War) Committee Royal Soc. London No. 2 1918 pp. 4-48 pls. i-xi text-fig.
- 78.—Newstead, R. and Morris, H. M. Bionomic, Morphological and Economic report on the Acarids of stored grain and flour. Rep. Grain Pests (War) Committee Royal Soc. London No. 8 1920 pp. 4-15 pls. i-v.
- 79.—Newstead, R. and Morris, H. M. Report on the Non-Parasitic or Forage Acari of the family *Tyroglyphidae*. (Appendix. Clinical Notes on the Non-Parasitic or Forage Mites by Pillers, W. N.). Rep. Grain Pests (War) Committee Royal Soc. London No. 8 1920 pp. 16-28 pls. vi-xi.
- Nuttall, G. H. F. *vide* Cunliffe, N.
- 80.—O'Connor, F. W. An outbreak of itch due to a predaceous mite, occurring in England amongst men engaged in unloading cotton seed from Egypt. Trans. Soc. Trop. Med. London 13 1919 No. 1 pp. 10-12 figs.
- 81.—Oudemans, A. C. Notizen über Acari, 25. Reihe. (*Trombidiidae*, *Oribatidae*, *Phthiracaridae*.) Arch. Natg. Berlin 82 A 1917 Hft. 6 pp. 1-83 pl. i text-figs.
- 82.—Oudemans, A. C. Notizen über Acari. 26. Reihe (*Oribatoidea*.) (Gruppe der Galumnae.) Arch. Natg. Berlin 83 A Hft. 4 1919 pp. 1-84 text-figs.
- 83.—Oudemans, A. C. Over de plaats der Demodicidae in het systeem der Acari. Ent. Ber. Helder 5 1921 pp. 310-312 315-318.
- 84.—Oudemans, A. C. Acarologische Aanteekeningen lxvi. Ent. Ber. Helder 5 1921 pp. 358-359.
- 85.—Pickard-Cambridge, O. Spiders in Morris, D. A Natural History of Bournemouth and District, Bournemouth 1914 pp. 262-269.
- 86.—Rabaud, E. L'instinct paralyseur des Araignées. C. R. Acad. Sci. Paris 172 1921 Pt. 5 pp. 289-291.
- 87.—Reese, A. M. Venomous spiders. Science New York N.Y. 54 1921 pp. 382-385.
- 88.—Reimoser, E. Katalog der echten Spinnen (*Araneae*) des Paläarktischen Gebietes. Abh. ZoolBot. Ges. Wien 10 1919 Hft. 2 pp. 1-280.
- 89.—Rennie, J. Isle of Wight disease in hive bees—Acarine disease; the organism associated with the disease—*Tarsonemus woodi*, sp. n. Trans. R. Soc. Edinburgh 52 1921 pp. 768-779 pl. lii text-figs.
- 90.—Ressler, L. *Thomisidae* of the Ames region. Proc. Iowa Acad. Sci. Des Moines 26 1919 pp. 151-156.
- 91.—Riley, W. A. An annotated list of the animal parasites of foxes. Parasitol. Cambridge 13 1921 pp. 93-94.
- 92.—Rodhain, J. Un Sarcophtidé, nouveau parasite de la Rousette africaine (*Eidolon helvum* Kerr). C. R. soc. biol. Paris 84 1921 pp. 757-759.
- 93.—Rodhain, J. and Gedoelst, L. Les affinités du Sarcophtidé de l'*Eidolon helvum*. C. R. soc. biol. Paris 84 1921 pp. 759-760.
- 94.—Roewer, F. C. 7 neue Opilioniden des Zoolog. Museums in Berlin. Arch. Natg. Berlin 81 A Hft. 12 1916 pp. 6-13 text-figs.
- 95.—Roewer, F. C. 52 neue Opilioniden. Arch. Natg. Berlin 82 A Hft. 2 1917 pp. 90-158 text-figs.

96.—Roewer, C. F. Über Nematostomatiden und ihre Verbreitung. Arch. Natg. Berlin 83 A Hft. 2 1919 pp. 140–160 text-figs.

St. John, J. H. vide Bates, L. B.

97.—Schazel, J. Die Tastsinnesorgane der Spinnen. Jenaische Zs. Natw. 56 1920 Hft. 2 Sitzb. pp. 13–20.

98.—Senevet, G. A propos de la reproduction chez *Hyalomma aegyptium* L. Bul. soc. hist. nat. Alger 12 1921 pp. 104–105.

99.—Stekhoven Jr., J. H. S. Zur biologie der Krätmilben. Verh. K. Akad. Wet. 2e Sect. Amsterdam 21 No. 2 1921 pp. 1–147 pls. i–xix.

100.—Stockman, S. The Pathology and Epizootiology of Louping-ill (Disease of sheep). With special reference to chromatin bodies in the white corpuscles. Trans. Soc. Trop. Med. London 12 1919 pp. 74–81.

101.—Strand, E. Zentralafrikanische Clubioniden. (Wissenschaftliche Ergebnisse der Deutschen Zentral-Afrika Expedition 1907–1908 unter Führung Adolf Friedrichs, Herzogs zu Mecklenburg.) Arch. Natg. Berlin 81 A Hft. 11 1916 pp. 79–98.

102.—Strand, E. Ueber einige Arachniden aus Buea in Kamerun. Arch. Natg. Berlin 81 A Hft. 11 1916 pp. 139–149.

103.—Strand, E. Arachnologia varia. i–ix. Arch. Natg. Berlin 81 A Hft. 12 1916 pp. 112–123.

104.—Strand, E. Collectanea Arachnologica. Beiträge zur Bibliographie und Geschichte der Arachnologie. Arch. Natg. Berlin 82 A Hft. 1 1917 pp. 42–69.

105.—Strand, E. Arachnologia varia. x–xiii. Arch. Natg. Berlin 82 A Hft. 1 1917 pp. 117–121.

106.—Strand, E. Arachnologia varia xiv–xviii, xix–xx. Arch. Natg. Berlin 82 A Hft. 2 1917 pp. 70–76 158–167 text-figs.

107.—Strand, E. Arachnologia varia. xxi–xxiv. Arch. Natg. Berlin 82 A Hft. 3 1917 pp. 39–44 text-figs.

108.—Strand, E. Zur Kenntnis japanischer Spinnen i and ii. Arch. Natg. Berlin 82 A Hft. 11 1918 pp. 73–90 90–113 pls. i–ii text-figs.

109.—Strand, E. Meine zoologischen (exclus. entomologischen) Publikationen 1897–1918, nebst Nachtrag zum Verzeichnis meiner entomologischen Publikationen. Arch. Natg. Berlin 83 A Hft. 7 1919 pp. 24–26.

110.—Strand, E. Arachniden aus Belgisch Kongo. I. (*Pedipalpen*, *Aviculariidae*, *Argiopidae*, *Clubionidae* und *Pisauridae*). Arch. Natg. Berlin 85 A Hft. 12 1920 pp. 98–113.

111.—Strand, E. *Nelima norvegica* Strand 1900 (Opiliones). Intern. ent. Zs. Guben 15 1921 p. 119.

112.—Trouessart, E. and Berlese, A. Generi nuovi di Acari. Redia Firenze 14 1921 p. 4.

113.—Viets, K. Hydracarinen aus der Diemel. Arch. Hydrobiol. Stuttgart 13 1921 Hft. 2 pp. 282–294 pl. iii text-figs.

114.—Viets, K. Liste von Hydracarinen dem Weserberglande bei Eschershausen. (Kr. Holzminden). Arch. Natg. Berlin 83 A Hft. 3 1919 pp. 10–21 text-figs.

115.—Viets, K. Hydracarinen aus der nächsten Umgebung Braunschweigs. Arch. Natg. Berlin 83 A Hft. 6 1919 pp. 156–182 text-figs.

116.—Viets, K. Zusammenfassende Liste über brandenburgische Hydracarin. Arch. Natg. Berlin 85 A Hft. 5 1920 pp. 71–74.

117.—Vitzthum, H. Acarologische Beobachtungen (Zweite Reihe). Arch. Natg. Berlin 84 A Hft. 6 1920 pp. 1–40 text-figs.

118.—Vitzthum, H. Acarologische Beobachtungen (3. Reihe.) Arch. Natg. Berlin 85 A Hft. 5 1920 pp. 1–62 text-figs.

119.—Vitzthum, H. Acarologische Beobachtungen. 4. Reihe. Arch. Natg. Berlin 86 A Hft. 10 1921 pp. 1–69 text-fig.

120.—Vitzthum, H. Acarologische Beobachtungen. 5. Reihe. Arch. Natg. Berlin 87 A Hft. 4 1921 pp. 1–77 text-figs.

121.—Ward, A. B. and Gallagher, B. A. Diseases of domesticated birds. New York 1920 pp. 198 202 214.

122.—Wells, B. W. New United States Zooecidia. Psyche Boston Mass. 28 1921 pp. 35–45.

123.—Wenninger, F. Notes on *Miranda aurantia*. Amer. Midl. Nat. Notre Dame Indiana 5 1917 pp. 141–147.

124.—Wilson, W. H. Note on the characters of Scorpion venom with demonstration of a method of obtaining the same. Bul. Inst. Egypt Cairo 3 1921 pp. 67–73.

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1.—Attems, C. G. Die indo-australischen Myriopoden. Arch. Natg. Berlin 80 A Hft. 4 1914 pp. 1-398 pls. i-vii.

2.—Attems, K. and Verhoeff, K. W. In Gingberger, A. Beiträge zur Naturgeschichte der Scoglien und kleineren Inseln Süddalmatiens. Denkschr. Ak. Wiss. Wien 92 1916 p. 340.

3.—Bagnall, R. S. Some new or little-known Lancashire Myriapods. Lancs. Ches. Nat. 13 1921 pp. 186-188.

4.—Berlese, A. Acari, Myriapoda, et Pseudoscorpiones hucusque in Italia reperta (Indici). Redia Firenze 14 1921 pp. 77-106.

5.—Brade-Birks, H. K. and S. G. Some Sussex Diplopoda and Chilopoda. Hastings and East Sussex Nat. 3 1920 pp. 119-124.

6.—Brolemann, H. W. Clef dichotomique des divisions et des espèces de la famille des *Blaniulidae* (Myriap.). Arch. zool. Paris 60 1921 Notes et Rev. No. 1 pp. 1-10.

7.—Brolemann, H. W. Myriapods from Mesopotamia and Persia, collected by Mr. P. A. Buxton. J. Bombay Nat. Hist. Soc. 28 1921 pp. 165-169 pls. i-ii.

8.—Chamberlin, R. V. New Chilopoda and Diplopoda from the East Indian region. Ann. Mag. Nat. Hist. London ser. 9 7 1921 pp. 50-87.

9.—Chamberlin, R. V. Chilopods and Diplopods from Knox Co., Tennessee. Canad. Entomol. London Can. 53 1921 pp. 230-233 pl. ix text-fig.

10.—Chamberlin, R. V. The Julidae and Isobatidae in North America. Proc. Biol. Soc. Washington 34 1921 pp. 81-84.

11.—Crampton, G. C. Preliminary note on the interpretation of Insectan and Myriopodan structures through

a comparison with the structures of Crustacea. Trans. Ent. Soc. London 1920 1921 pp. 340-346.

12.—Evans, W. A rare millipede (*Isobates varicornis*) in Midlothian. Scot. Nat. Edinburgh 1921 1921 p. 68.

13.—Fuhrmann, H. Beiträge zur Kenntnis der Hautsinnesorgane der Tracheaten. I. Die antennalen Sinnesorgane der Myriapoden. Zs. wiss. Zool. Leipzig 119 1921 Hft. 1 pp. 1-49 pls. i-iii text-figs.

14.—Grobelaar, C. S. The Scolopendridae of South Africa. Ann. Transvaal Mus. Pretoria 7 1921 pp. 245-261 text-figs.

15.—Gunthorp, H. Cragin's collection of Kansas Myriapoda. Canad. Entomol. London Can. 53 1921 pp. 87-91.

16.—Strand, E. Meine zoologischen (exclus. entomologischen) Publikationen 1897-1918, nebst Nachtrag zum Verzeichnis meiner entomologischen Publikationen. Arch. Natg. Berlin 83 A Hft. 7 1919 pp. 24-36.

17.—Verhoeff, K. W. Chilognathen-Studien. Arch. Natg. Berlin 86 A Hft. 12 1921 pp. 23-80 pls. i-ii.

18.—Verhoeff, K. W. Über Diplopoden der Riviera und einige alpenländische Chilognathen. Arch. Natg. Berlin 87 A Hft. 2 1921 pp. 1-110 text-figs.

Verhoeff, K. W. *vide* also Attems, K.

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PROTOTRACHEATA

I.—TITLES.

1.—Brues, C. T. On *Paraperipatus lorentzi* Horst and other species of the genus from New Guinea and Ceram. Psyche Boston Mass. 28 1921 pp. 50–52 pl. iii.

2.—Dakin, W. J. The Eye of *Peripatus*. Q. J. Microsc. Sci. London 65 1921 pp. 163–172 pl. vii text-figs.

3.—Strand, E. Meine zoologischen (exclus. entomologischen) Publikationen 1897–1918, nebst Nachtrag zum Verzeichnis meiner entomologischen Publikationen. Arch. Natg. Berlin 83 A Hft. 7 1919 pp. 24–36.

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BY

N. D. RILEY

(Assisted by H. CAMPION, W. E. CHINA, F. LAING and
W. H. T. TAMS).

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I.—TITLES.

- 1.—Achard, J. Révision du genre *Doryphora* Ill. (*Megistomela* Chap.). Ann. Soc. ent. Belgique Bruxelles **61** 1921 pp. 195–201. [*Coleoptera*.]
- 2.—Achard, J. Une nouvelle espèce du genre *Ascapium* Lewis. Bull. Soc. ent. France Paris **1921** p. 93. [*Coleoptera*.]
- 3.—Achard, J. Descriptions d'espèces nouvelles de *Trichochrysea*. Bull. Soc. ent. France Paris **1921** pp. 171 & 172. [*Coleoptera*.]
- 4.—Ackermann, D. Über die Extraktstoffe von *Melolontha vulgaris*. Zs. Biol. München **71** 1920 pp. 193–202. [*Coleoptera*.]
- 5.—Acqua, C. Ricerche sperimentali sui processi digestion della larva del filugello. Boll. Lab. Portici Portici **11** 1921 pp. 3–44 pls. i & ii. [*Lepidoptera*.]
- 6.—Acqua, C. La fototassi del filugello. Boll. Lab. Portici Portici **11** 1921 pp. 45–84 pls. iii & iv. [*Lepidoptera*.]
- 7.—Adair, E. W. The Moults of *Empusa egea*, by Dr. E. Bugnion. [Translation with additional figures.] Bul. Soc. Ent. Egypte Cairo **1920** 1921 pp. 56–100. [*Orthoptera*.]
- 8.—Adolph, E. F. Egg-laying reactions in the Pomace-fly, *Drosophila*. J. Exp. Zool. Philadelphia **31** 1920 pp. 327–341. [*Diptera*.]
- 9.—Ahlberg, O. Zur Identitätsfrage von *Trichothrips pini* Halid. Ent. Tidskr. Uppsala **42** 1921 pp. 107–111 3 text-figs. [*Thysanoptera*.]
- 10.—Aichele, F. Biologisches über einige seltene Micro. Soc. Entomol. Stuttgart **36** 1921 p. 48. [*Lepidoptera*.]
- 11.—Aiyar, T. V. R. An undescribed natural enemy of the Castor Semilooper (*Achoea* (*Ophiusa*) *melicerte*, Hmp.). J. Bombay Nat. Hist. Soc. **28** 1921 pp. 298–300 pl. [*Lepidoptera*.]
- 12.—Alboth, J. Die II. Generation von *Papilio podalirius* Linné. Int. ent. Zs. Guben **15** 1921 pp. 142–143. [*Lepidoptera*.]
- 13.—Albrecht, H. F. *Neptis aceris* v. Čechách. Časopis Praze **16** 1919 pp. 26–27. [*Lepidoptera*.]
- 14.—Aldrich, J. M. *Coloradia pandora* Blake, a moth of which the caterpillar is used as food by the Mono Lake Indians. Ann. Ent. Soc. Amer. Columbus Ohio **14** 1921 pp. 36–38. [*Lepidoptera*.]
- 15.—Aldrich, J. M. The Muscoid genera *Pseudeuanta* and *Uramyia* (*Diptera*). Insector Ins. Menstr. Washington **9** 1921 pp. 83–92.
- 16.—Aldrich, J. M. The Anthomyiid genus *Atherigona* in America (*Diptera*). Insector Ins. Menstr. Washington **9** 1921 pp. 93–98 fig.
- Aldrich, J. M. v. van Duzee, Cole and Aldrich.
- 17.—Alexander, W. B. List of Orthopterous Insects recorded from Western Australia. J. R. Soc. W. Australia Perth **2** 1917 (97–103).
- 18.—Alexander, C. P. *Diptera* Tipulidae from Juan Fernandez. The natural history of Juan Fernandez and Easter Island, ed. by C. Skottsberg **3** pt. 1 1921 pp. 25–27 Uppsala.
- 19.—Alexander, C. P. Two undescribed species of Japanese Ptychopteridae (*Diptera*). Insector Ins. Menstr. Washington **9** 1921 pp. 80–83.
- 20.—Alexander, C. P. Undescribed species of Japanese Crane-flies (Tipulidae, *Diptera*) Part II. Ann. Ent. Soc. Amer. Columbus Ohio **14** 1921 pp. 111–134.
- 21.—Alexander, C. P. New species of Japanese Crane-flies. Part II. (*Diptera*, Tipulidae). Insector Ins. Menstr. Washington **9** 1921 pp. 179–186.

22.—Alexander, C. P. Two undescribed tipuloidean flies from New Zealand (*Diptera*, Tanyderidae and Rhyphidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 157-160.

23.—Alexander, C. P. A new species of *Tipula* injurious to pasture lands (Tipulidae, *Diptera*). Insecutor Ins. Menstr. Washington 9 1921 pp. 135-137.

24.—Alexander, C. P. An undescribed West African species of *Ptychoptera* Meigen (*Diptera*, Ptychopteridae). Insecutor Ins. Menstr. Washington 9 1921 pp. 145-146.

25.—Alexander, C. P. New or little-known Tipulidae, vii, Australian species. Ann. Nat. Hist. London 8 1921 pp. 546-563. [*Diptera*.]

26.—Alexander, C. P. Undescribed species of African crane-flies in the collection of the British Museum (Natural History): Tipulidae, *Diptera*. Part ii, Subfamily Tipulinae. Ann. Nat. Hist. London 7 1921 pp. 98-118.

27.—Alexander, C. P. New or little-known Tipulidae, iv, Ethiopian species. Ann. Nat. Hist. London 7 1921 pp. 305-322. [*Diptera*.]

28.—Alexander, C. P. New or little-known Tipulidae, v, vi, Ethiopian species. Ann. Nat. Hist. London 8 1921 pp. 161-175 309-320. [*Diptera*.]

29.—Alexander, C. P. Undescribed crane-flies from Argentina. Parts ii & iii. Ent. News Philadelphia 32 1921 pp. 72-76 175-179. [*Diptera*.]

30.—Alexander, C. P. Undescribed crane-flies from Argentina (Tipulidae *Diptera*). Ent. News Philadelphia 32 1921 pp. 292-295.

31.—Alexander, C. P. New or little-known crane-flies from the Amazonian Region. Proc. Acad. Nat. Sci. Philadelphia 73 1921 pp. 39-104 pl. iv. [*Diptera*.]

32.—Alexander, C. P. Undescribed crane-flies in the Paris Museum (Tipulidae, *Diptera*): Part iii. Bul. Muséum Paris 1921 pp. 303-306 346-350 539-542.

33.—Alexander, C. P. A new genus and species of Tanyderidae (*Peringuey-*

omyina barnardi) in the South African Museum. Ann. S. Afr. Mus. Cape Town 18 1921 pp. 231-234 fig. [*Diptera*.]

34.—Alexander, C. P. The Crane-flies of South Africa in the South African Museum. Pt. ii. Ann. S. Afric. Mus. 18 1921 pp. 181-230. [*Diptera*.]

35.—Alexander, C. P. New nearctic crane-flies. Part xi. Canad. Entom. Guelph 53 1921 pp. 132-136. [*Diptera*.]

36.—Alexander, C. P. Undescribed eriopterine crane-flies from Argentina. Canad. Entom. Guelph 53 1921 pp. 162-166. [*Diptera*.]

37.—Alexander, C. P. New species of crane-flies from north Queensland. Canad. Entom. Guelph 53 1921 pp. 205-211. [*Diptera*.]

38.—Alfieri, A. Sur un *Trachys* d'Egypte (*Col.*). Bul. Soc. Ent. Egypte Cairo 1920 1921 p. 17.

39.—Alfieri, A. Notes concernant la biologie de la *Pachnoda fasciata* F. (*Col.*). Bul. Soc. Ent. Egypte Cairo, 1920 1921 pp. 34-38.

40.—Alfieri, A. Description de l'oothèque inconnu de *Heterogamia aegyptiaca* L. (*Orthop.*). Bul. Soc. Ent. Egypte Cairo 1920 1921 p. 38 figs.

41.—Alfieri, A. Contributions à la faune entomologique du Nord-Est du Sinaï. Bul. Soc. Ent. Egypte Cairo 1920 1921 p. 40-55.

42.—Almeida, R. F. de. Notes sur quelques *Lépidoptères* d'Amérique du Sud. Ann. Soc. ent. France Paris 90 1921 pp. 57-65.

43.—Alphéraky, S. A propos d'article de M. A. M. Djakonov sur les espèces du genre *Stammodes* Guen. Rev. Russe Ent. Petrograd 16 1916 pp. 112-114. [*Lepidoptera*.]

44.—Andreae, H. Sammelgeräte. Ent. Mitt. Berlin 10 1921 pp. 199-200 3 text-figs.

45.—Andres, A. Liste der von Dr. Wilh. Valentiner in den Jahren 1879 bis 1884 in den Mittelmeerländern, hauptsächlich in Ägypten, gesammelten Tenebrioniden. Jahrb. Nassau. Ver. Wiesbaden 71 1919 pp. 226-232. [*Coleoptera*.]

- 46.—Andres, A. Über das Auftreten des roten Saabwurm (Gelechia gossypiella Saund.) in Ägypten. Zs. angew. Ent. Berlin 1 1914 pp. 244-247. [*Lepidoptera*.]
- 47.—Andres, A. Die wichtigsten Baumwollschädlinge Ägyptens unter besonderer Berücksichtigung ihres etwaigen Vorkommens in der Türkei. Zs. angew. Ent. Berlin 3 1916 pp. 405-417. [*Lepidoptera*.]
- 48.—Andres, A. Bekämpfung der Kleidermotte (*Tineola biselliella*) durch Blausäure. Zs. angew. Ent. 4 1918 pp. 366-368. [*Lepidoptera*.]
- 49.—Andres, A. und Müller, A. Ein einfaches Verfahren der Blausäureentwicklung aus Cyannatriumlösungen und seine Verwendung zur Bekämpfung schädlicher Insekten. Zs. angew. Ent. Berlin 6 1920 pp. 372-389.
- 50.—Andres, A. Ein Schädling an Azaleen in Gewächshäusern. Zs. angew. Ent. Berlin 6 1920 pp. 404-405.
- 51.—Andrewes, H. E. The Carabidae of Barkuda island. Rec. Ind. Mus. Calcutta 22 1921 pp. 339-348. [*Coleoptera*.]
- 52.—Andrewes, H. E. The Oriental species of the genus *Callistomimus* (*Coleoptera*, Carabidae). Proc. Zool. Soc. London 1921 pp. 233-248 pl.
- 53.—Andrewes, H. E. Notes on Synonymy and on some Types of Oriental Carabidae in various foreign collections. Trans. ent. soc. London 1921 pp. 145-195. [*Coleoptera*.]
- 54.—Andrewes, H. E. Papers on Oriental Carabidae. vi. Ann. Nat. Hist. London 7 1921 pp. 404-411. [*Coleoptera*.]
- 55.—Andrewes, H. E. Notes sur les Carabiques orientaux. iii. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 202-210. [*Coleoptera*.]
- 56.—Andrewes, H. E. Notes on Oriental Carabidae. ii. Ent. Mag. London 57 1921 pp. 248-252. [*Coleoptera*.]
- 57.—Annandale, N. The fauna of an island in Chilka Lake. Introduction. Rec. Ind. Mus. Calcutta 22 1921 pp. 313-321.
- 58.—Annandale, N. and Dover, C. The Cicindelid beetles of Barkuda island. Rec. Ind. Mus. Calcutta 22 1921 pp. 335-337. [*Coleoptera*.]
- 59.—Annandale, N. and Dover, C. The Butterflies of Barkuda Island. Records of the Indian Museum 22 1921 pp. 349-375. [*Lepidoptera*.]
- 60.—Anonymous. John Reinhold Sahlberg. Notulae Ent. Helsingfors 1 pp. 21-25 1921.
- 61.—Anonymous. K. A. Poppius. Notulae Ent. Helsingfors 1 pp. 25-26 1921.
- 62.—Anonymous. Veli Kurt Abt. Notulae Ent. Helsingfors 1 p. 26 1921.
- 63.—Antoine, M. Coup d'oeil comparatif sur la faune de Carabiques des côtes calcaires et des zones basses aux environs d'Amiens et de Caen. Bul. soc. Linn. Amiens 21 1913 pp. 332-365. [*Coleoptera*.]
- 64.—Armbruster, L. Wünsche der deutschen Bienenzucht. Verh. Deut. Gesell. angew. Ent. Berlin 1919 pp. 145-156. [*Hymenoptera*.]
- 65.—Arnat, W. Beitrag zur Kenntnis der Höhlenfauna. Zool. Anz. Leipzig 52 1921 pp. 311-315. [*Insecta*.]
- 66.—Arnhart, L. Das Puppenhäuschen der Honigbiene. Zs. angew. Ent. Berlin 5 1919 pp. 231-251. [*Hymenoptera*.]
- 67.—Arrangua, E. V. Resistencia vital de la *Plagiolera erythroptera* Bl. Rev. Chil. Hist. Nat. Santiago 20 1916 p. 99. [*Coleoptera*.]
- 68.—Arrow, G. J. A revision of the Melolonthine beetles of the genus *Ectinohoplia*. Proc. Zool. Soc. London 1921 pp. 267-276 pls. [*Coleoptera*.]
- 69.—Arrow, G. J. Two remarkable new Ruteline beetles from Indo-China. Ann. Nat. Hist. London 7 1921 pp. 378-380 pl. x. [*Coleoptera*.]
- 70.—Ashworth, J. H. Chironomid parasite and its effects. Naturalist London 1921 pp. 15 & 16. [*Diptera*.]
- 71.—Atkins, W. R. G. Note on the chemotropism of the house fly. Ann. appl. Biol. Cambridge 8 1921 pp. 216 & 217. [*Diptera*.]

- 72.—Atkinson, D. J. *Ips (Tomicus) erosus* in Britain. Ent. Mag. London 57 1921 pp. 253-255. [Coleoptera.]
- 73.—Aurivillius, C. Neue Cerambyciden aus der Sammlung G. van Roon. Tijdschr. Ent. 's-Gravenhage 64 1921 pp. 46-53 1 pl. [Coleoptera.]
- 73a.—Aurivillius, C. Descriptions of some South African *Heterocera* (Lepidoptera). Ann. S. Afric. Mus. Cape Town 18 1921 pp. 235-244.
- 74.—Austen, E. E. The prey of the yellow dung-fly, *Scatophaga stercoraria* L. Ann. Nat. Hist. London 8 1921 pp. 118-123. [Diptera.]
- 75.—Austen, E. E. A contribution to knowledge of the blood-sucking *Diptera* of Palestine, other than Tabanidae. Bull. ent. Res. London 12 1921 pp. 107-124 pl. iv.
- 76.—Auzat, V. Description d'un nouveau *Pachylopus* d'Algérie. Bull. Soc. ent. France Paris 1921 p. 191. [Coleoptera.]
- 77.—Ayyar, T. V. R. Short notes on new and known insects from South India. Rep. ent. meeting Pusa 4 Calcutta 1921 pp. 29-40 pls. ii-vi.
- 78.—Ayyar, T. V. R. A check list of the Coccidae of the Indian region. Rep. ent. meeting Pusa 4 Calcutta 1921 pp. 336-362. [Homoptera.]
- 79.—Ayyar, T. V. R. A list of parasitic *Hymenoptera* of economic importance from South India. Rep. ent. meeting Pusa 4 Calcutta 1921 pp. 363-366.
- 80.—Baer, W. Die Tachinen als Schmarotzer der schädlichen Insekten. Ihre Lebensweise, wirtschaftliche Bedeutung und systematische Kennzeichnung. Zs. angew. Ent. Berlin 6 1920 pp. 185-246; 7 pp. 97-163 349-423. [Diptera.]
- 81.—Bagnall, R. S. On *Thysanoptera* from the Seychelles Islands and Rodrigues. Ann. Nat. Hist. London 7 1921 pp. 257-293 pls. iv-vii.
- 82.—Bagnall, R. S. Brief descriptions of new *Thysanoptera* xi, xii. Ann. Nat. Hist. London 7 1921 pp. 355-368 figs.; 8 pp. 393-400.
- 83.—Bagnall, R. S. On *Physothrips latus* Bagn., and some allied species. Ent. Mag. London 57 1921 pp. 61-64. [Thysanoptera.]
- 84.—Bagnall, R. S. and Harrison, J. W. H. New British Cecidomyiidae. Ent. Record London 33 1921 pp. 151-155 166-169. [Diptera.]
- 85.—Bagnall, R. S. and Harrison, J. W. H. Midge-galls of Yorkshire. Naturalist London 1921 pp. 337-341. [Diptera.]
- 86.—Baker, A. C. On the family name for the plant lice. Proc. ent. Soc. Washington 23 1921 pp. 101-103. [Homoptera.]
- 87.—Baldi, E. Ricerche sulla fisiologia del sistema nervoso negli insetti. Atti. soc. ital. sci. nat. Milan 60 1921 pp. 11-33, 1 plate.
- 88.—Balfour, A. Mosquito breeding in saline waters. Bull. ent. Res. London 12 1921 pp. 29-34. [Diptera.]
- 89.—Ball, E. D. The smallest known Leaf Hopper. Proc. Biol. Soc. Washington 34 1921 pp. 23-24. [Hemiptera.]
- 90.—Ballard, E. Additions and corrections to the list of crop-pests in South India. Rep. Ent. meeting Pusa 4 Calcutta 1921 pp. 21-28, pl. i.
- 91.—Ballard, E. Report on campaign against *Spodoptera mauritia* in Malabar. Rep. ent. meeting Pusa 4 Calcutta 1921 pp. 60-69, pls. viii-xii. [Lepidoptera.]
- 92.—Banks, N. New Nearctic Fossorial *Hymenoptera*. Ann. Ent. Soc. Amer. Columbus Ohio 14 1921 pp. 16-26.
- 93.—Bänninger, M. Vierter Beitrag zur Kenntnis der Carabinae. (Col.). Ent. Mitt. Berlin 10 1921 pp. 112-120, 151-156.
- 94.—Barber, H. C. Revision of the genus *Lygaeus* Fab. Proc. ent. Soc. Washington 23 1921 pp. 63-67. [Heteroptera.]
- 95.—Barber, H. G. Revision of the genus *Ligyrocoris* Stål (Hemiptera, Lygaeidae). J. New York Ent. Soc. 29 1921 pp. 100-114.
- 96.—Barber, G. W. *Cicadella gothica* Sign. A correction. Psyche Boston Mass. 28 1921 p. 130. [Homoptera.]
- 97.—Barber, G. W. Collecting about Walden pond. Canad. Entom. Guelph 53 1921 pp. 145 & 146.

98.—Bargen, A. v. *Heliothis armigera* Hb. bei Hamburg. Int. ent. Zs. Guben 14 1921 p. 176. [*Lepidoptera*.]

99.—Barlow, J. The mating habits of *Megarhyssa* (*Hym. Ichneumonidae*). Ent. News Philadelphia 32 1921 p. 291.

100.—Barnard, K. H. Notes on the life-history of *Chlorolestes conspicua*. Ann. S. Afric. Mus. Cape Town 18 1921 pp. 445–446, figs. [*Paraneuroptera*.]

101.—Barnes, W. and Lindsey, A. W. The *Pterophoridae* of America, North of Mexico. Contributions to the Natural History of the *Lepidoptera* of North America Decatur 4 1921 pp. 281–452 pls. 41–54.

102.—Barnes, W. and Lindsey, A. W. A new species of *Heterocampa* (*Lep., Notodontidae*). Psyche Boston Mass. 28 1921 pp. 150–151.

103.—Barnes, W. M. and Lindsey, A. W. Notes on Noctuidae, with descriptions of some new species (*Lep.*). Psyche Boston Mass 28 1921 pp. 156–159.

104.—Barnes, W. and Lindsey, A. W. On some species of *Hesperia*. Ent. News Philadelphia 32 1921 pp. 78–80. [*Lepidoptera*.]

105.—Barnes, W. and Lindsey, A. W. Notes and New Species (*Lep. Arctiidae*). Ent. News Philadelphia 32 1921 pp. 295–298.

106.—Barovsky, V. V. Mutillidae Петроградской губ. (*Hymenoptera*). [Mutillidae of the Government of Petrograd.] Faunae Petropolitanae Catalogus, Petrograd 2 No. 9 1921 pp. 1–6.

107.—Barraud, P. J. Mosquitoes collected in Palestine and adjacent territory. Bull. ent. Res. London 11 1921 pp. 387–395. [*Diptera*.]

108.—Bartenev, A. N. Contributions à la faune des Odonates du Nord de Perse. Rev. Russe Ent. Petrograd 16 1916 pp. 38–45. [*Paraneuroptera*.]

109.—Bartenev, A. Les excursions odonatologiques dans les environs de Rostov sur Don en 1916. Rev. Russe Ent. Petrograd 16 1917 pp. 319–327. [*Paraneuroptera*.]

110.—Bartenev, A. Notice sur les Odonates des environs de la ville Signach, gouvernement de Tiflis. Rev. Russe Ent. Petrograd 16 1917 pp. 343–345. [*Paraneuroptera*.]

111.—Bartenev, A. Contributions à la faune des Libellulides de la Sibérie. 16. Faune odonatologique des environs de la ville Jakutsk. Rev. Russe Ent. Petrograd 17 1921 pp. 129–134. [*Paraneuroptera*.]

112.—Bartenev, A. Liste des Libellulides du gouvernement de Stavropol. Rev. Russe Ent. Petrograd 17 1921 pp. 144–151. [*Paraneuroptera*.]

113.—Bartenev, A. N. О классификации и конституции рода *Sympetrum* Newm. (*Odonata, Libellulidae*). [On the classification and constitution of the genus *Sympetrum*, Newm.] Varšava Izv. Univ. 1917 19 pp. [*Paraneuroptera*.]

114.—Bartenev, A. N. Летъ стрекозъ 1914 г. и о летахъ стрекозъ вообще. [Migration of dragonflies in 1914 and on migration of dragonflies in general.] Prot. Obsč. Est. Donsk. Univ. 1 1918–1919 pp. 49–66 map. [*Paraneuroptera*.]

115.—Barthe, E. Procédés de chasse, d'élevage, de préparation et de conservation (suite). Misc. ent. Narbonne 25 1921 pp. 43–47, 62–64, 75–79.

116.—Barthe, E. Contribution à l'étude du *Carabus auratus* de la region franco-rhénane. Misc. Ent. Narbonne 25 1921 pp. 49–53, 68–71. [*Coleoptera*.]

117.—Barthe, E. Tableaux analytiques pour la détermination des Coléoptères de la Faune franco-rhénane, xiv, Liodidae pp. 33–48, 49–64 publ. with Misc. Ent. Narbonne 25 1921.

118.—Barthe, E. Tableaux analytiques pour la détermination des Carabidae de la region franco-rhénane, comprenant toutes les espèces, variétés, races et aberrations (suite) pp. 385–400, 401–416 publ. with Misc. Ent. Narbonne 25 1921. [*Coleoptera*.]

119.—Basil-Edwards, S. On the habits of a *Sceliphron* wasp (*S. deforme*). J. Bombay Nat. Hist. Soc. 28 1921 pp. 293–297 figs. [*Hymenoptera*.]

120.—Bat'a, L. Dodatky k seznamu Makrolepidopter. Časopis Praze (Prague) 18 1921 pp. 10–14.

121.—Baudys, E. a Wimmer, A. O hálkách a hálkotvorch na Českých Ostrřicích. Časopis Praze 17 1921 pp. 45–59 text-figg. [*Diptera*.]

122.—Baudys, E. a Wimmer, A. O hálkách a hálkotvorch na Českých ostrřicích. Časopis Praze 16 1919 pp. 40–60 3 text-figg. [*Diptera*.]

123.—Bauer, A. Die geographische Verbreitung der Tenebrioniden Europas. Arch. Natg. Berlin Abt. A 87 Heft 3 1921 pp. 207–247. [*Coleoptera*.]

Bauer, V. vide Bücher and.

Baume, W. La vide Bücher and.

124.—Baunacke. Die Spiegelnadel, ein unentbehrliches Hilfsgerät bei entomolog. Arbeiten. Ent. Rundsch. Stuttgart 38 1921 pp. 8–9.

125.—Beaulieu, G. Monographie des Mélasides du Canada. Nat. Canad. Quebec 46 1919–20 pp. 73, 100, 124, 185, 254, 285; 47 1920–21 pp. 83, 155, 186, 210, 260, 284. [*Coleoptera*.]

126.—Beaulne, J. J. Les Coléoptères du Canada (cont.). Nat. Canad. Quebec 46 1919–20 pp. 45–48, 69–72, 94–96, 117–119, 136–143, 164–167, 181–185, 212–216, 235–239, 260–263, 274–284; 47 1920–21 pp. 66–71, 89–95, 117–120, 138–142, 279–284; 48 1921 pp. 21–24, 42–48, 64–72, 89–96, 113–120, 141–144.

127.—Becker, F. Fang eines Exemplares von *Argynnis eris* ab. *pelopia*. Int. ent. Zs. Guben 15 1921 pp. 108–109. [*Lepidoptera*.]

128.—Becker, T. Dr. L. Zürcher's Dipteren-Ausbeute aus Paraguay: Dolichopodidae. Arch. Natg. Berlin Abt. A 87 Heft 3 1921 pp. 114–117, 1 text-fig.

129.—Becker, T. Neue Dipteren meiner Sammlung. Pipunculidae. Wien. Ent. Zeit. 38 1921 pp. 123–132, 149–167.

130.—Bedel, L. Coléoptères nouveaux du Maroc. Récoltes du Dr. M. Bedel dans le moyen Atlas, 1916–1917. Bull. soc. ent. France Paris 1921 pp. 59–61.

131.—Bedel, L. Description d'un *Zonabris* de l'Ahaggar (Sahara central). Bull. Soc. ent. France Paris 1921 p. 199. [*Coleoptera*.]

132.—Beljaev, V. Les espèces du genre *Necrophorus* Fabr. du gouvernement d'Orel. Rev. Russe Ent. Petrograd 16 1917 p. 409. [*Coleoptera*.]

133.—Bell, T. R. The common butterflies of the plains of India. (Including those met with in the Hill Stations of the Bombay Presidency.) J. Bombay Nat. Hist. Soc. 27 1921 pp. 431–447 pl. N figs. pp. 778–793. [*Lepidoptera*.]

134.—Belling, H. Das Weibchen von *Parnassius apollo* f. *antijesuita* Bryk. D. ent. Zs. Berlin 1921 pp. 263–265 fig. [*Lepidoptera*.]

135.—Belling, H. Über einen Fall von abnormer Kopula bei *Lasiocampa quercus* L. D. ent. Zs. Berlin 1921 pp. 89–90. [*Lepidoptera*.]

136.—Belousov, V. Scolytiens des monts du nord de Sajan (*Coleoptera*, Ipidae). Rev. Russe Ent. Petrograd 16 1917 pp. 334–337.

137.—Bénard, G. Description d'une nouvelle espèce du genre *Trichiorhyssenus* [Col.]. Bul. Muséum Paris 1921 pp. 75–76.

138.—Bénard, G. Description d'une nouvelle espèce de *Polyhirma* de l'Angola (Col. Carabidae). Bul. Muséum Paris 1921 p. 534.

139.—Bénard, G. Description d'une nouvelle espèce de *Polyhirma* de l'Afrique orientale. Bull. Soc. ent. France Paris 1921 p. 37. [*Coleoptera*.]

140.—Bénard, G. Description d'une variété nouvelle de *Polyhirma* de l'Afrique orientale. Bull. Soc. ent. France Paris 1921 pp. 66 & 67. [*Coleoptera*.]

141.—Bénard, G. Description d'une nouvelle espèce d'*Anthia* d'Afrique orientale. Bull. Soc. ent. France Paris 1921 pp. 95 & 96. [*Coleoptera*.]

142.—Benderitter, E. Un Rutélide nouveau de Pérou. Bull. Soc. ent. France Paris 1921 pp. 187 & 188. [*Coleoptera*.]

- 143.—Benderitter, E. Quelques Rutélides nouveaux du Congo belge. *Rev. zool. Afric. Bruxelles* 9 1921 pp. 23-28. [*Coleoptera.*]
- 144.—Bengtsson, S. Bernhard Haij. *Ent. Tidskr. Uppsala* 42 1921 pp. 120-124 (photograph).
- 145.—Benick, L. Nomenklatorisches über Steninen (*Col.*, *Staph.*). *Ent. Mitt. Berlin* 10 1921 pp. 191-194.
- 146.—Benick, L. Ueber das Zahlenverhältnis der Geschlechter bei den Steninen. *Ent. Blätter Berlin* 17 1921 pp. 29-34. [*Coleoptera.*]
- 147.—Benick, L. Ueber *Stenus*-Typen von Mäklin und Motschoulsky aus dem Zoolog. Museum in Helsingfors, nebst Beschreibung einer neuen Art. *Ent. Blätter Berlin* 17 1921 pp. 112-116. [*Coleoptera.*]
- 148.—Benoist, R. Description d'une espèce nouvelle du genre *Euchalcis*. *Bull. Soc. ent. France Paris* 1921 pp. 118-120. [*Hymenoptera.*]
- 149.—Benoist, R. Sur quelques *Hyménoptères* mellifères des environs de Paris. *Bull. Soc. ent. France Paris* 1921 pp. 249-251.
- 150.—Benoit, A. Note sur un parasite coléoptère de l'orme. Le *Galeruca californiensis* Lin. *Bull. Soc. Ardennes Charleville* 8 1901 pp. 48-49. [*Coleoptera.*]
- 151.—Benoit, A. Note sur deux parasites des arbres, l'*Hylobius abietis* et l'*Hyponomeuta malinella*. *Bull. Soc. Ardennes Charleville* 9 1902 pp. 58-60. [*Coleoptera*, *Lepidoptera.*]
- 152.—Bequaert, J. *Atherix braunsi* nov. sp., a South African Leptid with gregarious habits (*Diptera*). *Psyche Boston Mass.* 28 1921 pp. 1-7 fig.
- 153.—Bequaert, J. On *Eumenes alluaudi* Perez, a preclivous wasp of the Seychelles (*Hymenoptera*). *Psyche Boston Mass.* 28 1921 pp. 160-164 figs.
- 154.—Berger, B. Les Scolytiens de la province d'Oussourie du Sud. *Rev. Russe Ent. Petrograd* 16 1917 pp. 227-248 figs. 1-22. [*Coleoptera.*]
- 155.—Berger, B. and Cholodkovsky, N. On some points of biology and anatomy of the genus *Scolytoplatus* Blandford (*Coleoptera*, *Ipidae*). *Rev. Russe Ent. Petrograd* 16 1916 pp. 1-7 figs. 1-7.
- 156.—Bergevin, E. de. Description de deux espèces nouvelles de *Dictyophara* d'Algérie. *Bull. Soc. ent. France Paris* 1921 pp. 96-100. [*Homoptera.*]
- 157.—Bergevin, E. de. Description d'une nouvelle espèce d'*Hysteropterum* monocanthé de l'Atlas blidéen. *Bull. Soc. ent. France Paris* 1921 pp. 241-244. [*Homoptera.*]
- 158.—Bergevin, E. de. Description d'une nouvelle espèce de *Goniagnathus* (*Hemipt.* *Jassidae*) d'Algérie. *Bull. soc. hist. nat. Alger* 11 1920 pp. 77-79 3 figs.
- 159.—Bergevin, E. de. Description d'une nouvelle espèce d'*Hysteropterum* (*Hémiptère* *Issidae*) de Tunisie. *Bull. soc. hist. nat. Alger* 11 1920 pp. 87-90 6 figs.
- 160.—Bergevin, E. de. Description d'une nouvelle espèce de *Tettigometra* (*Hémiptère* *Tettigometridae*) du Maroc oriental. *Bull. soc. hist. nat. Alger* 11 1920 pp. 102-104 1 fig.
- 161.—Bergevin, E. de. Description de deux variétés de l'*Hysteropterum normandi* Berger. *Bull. soc. hist. nat. Alger* 12 1921 pp. 18-19 1 fig. [*Hemiptera.*]
- 162.—Bergevin, E. de. Note à propos du *Nysius longicornis* Put. et du *Leuconysius biskrensis* Popp. (*Hémiptères* *Lygaeidae*). *Bull. soc. hist. nat. Alger* 12 1921 pp. 199-201 3 figs.
- 163.—Bergevin, E. A propos de la capture à Alger de *Palomena angulata* Puton. *Bull. soc. hist. nat. Alger* 12 1921 pp. 154-155 4 figs. [*Hemiptera.*]
- 164.—Bergroth, E. On the types of the exotic *Hemiptera Heteroptera* described by V. Motschulsky. *Rev. Russe Ent. Petrograd* 17 1921 pp. 96-109.
- 165.—Bergroth, E. Neue oder wenig bekannte *Heteropteren*. *Arch. Natg. Berlin A.* 83 2 1919 pp. 1-6.
- 166.—Bergroth, E. Notes on some Cyminae. *Ann. Soc. ent. Belgique Bruxelles* 61 1921 pp. 165-168. [*Heteroptera.*]

- 167.—Bergroth, E. On *Halyomorpha* and allied genera. *Notulae Ent. Helsingfors* 1 1921 pp. 4-8. [*Hemiptera*.]
- 168.—Bergroth, E. On some *Opisthoplatyinae* (*Hem. Reduviidae*). *Notulae Ent. Helsingfors* 1 1921 pp. 67-70.
- 169.—Bergroth, E. The first *Heteropter* from Juan Fernandez. *Ent. Tidskr. Uppsala* 42 1921 pp. 41-45 1 text-fig. [*Hemiptera*.]
- 170.—Bergroth, E. An aberrant genus of *Geocorinae*. *Ent. Mag. London* 57 1921 pp. 110-112. [*Heteroptera*.]
- Bergroth, E. *vide* Poppius and Bergroth.
- 171.—Berland, L. Travaux scientifiques de l'Armée d'Orient (1916-1918). *Hyménoptères fouisseurs*. *Bul. Muséum Paris* 1921 pp. 531-533.
- 172.—Berland, L. Notices sur les membres de la Société entomologique morts au champ d'honneur. *Ann. Soc. ent. France Paris* 39 1921 pp. 417-436 portraits.
- 173.—Berliner, Ernst. Über die Schlafsucht der Mehlmottenraupe (*Ephestia kühniella* Zell.) und ihren Erreger *Bacillus thuringiensis* sp. n. *Zs. angew. Ent. Berlin* 2 1915 pp. 29-56. [*Lepidoptera*.]
- 174.—Berlioz, J. Note sur une espèce nouvelle d'Eumolpide (*Col. Chrysomélides*) de la Chine meridionale. *Bul. Muséum Paris* 1921 pp. 332-333.
- 175.—Bernhauer, M. Neue Staphyliniden aus Südamerika, besonders aus Argentinien. *Wien. Ent. Zeit.* 33 1921 pp. 101-108, 169-179. [*Coleoptera*.]
- 176.—Bernhauer, M. *Coleoptera* Staphylinidae von den Juan Fernandez Inseln und Osterinsel. The natural history of Juan Fernandez and Easter Island ed. by C. Skottsberg 3 pt. 1 1921 pp. 41-44 3 figs. Uppsala.
- 177.—Bernhauer, M. Kurzflügler aus dem deutschen Schutzgebiete Kiaatschaa und China. *Arch. Natg. Berlin Abt. A Hft. 8* 1915 pp. 27-34.
- 178.—Bernhauer, M. Zur *Staphyliniden* fauna von Südamerika (24 Beitrage.) *D. ent. Zs. Berlin* 1921 pp. 65-77. [*Coleoptera*.]
- 179.—Bernhauer, M. Beitrag zur Kenntnis der Gattung *Thinocharis* subgenus *Sciocharis*. *Ent. Blätter Berlin* 17 1921 pp. 35-39. [*Coleoptera*.]
- 180.—Bertsch, K. Ein Schmetterling als Glazialrelikt. *Ent. Mitt. Berlin* 10 1921 pp. 11-15 2 text-figs. [*Lepidoptera*.]
- 181.—Bestel, F. Captures entomologiques au Bois Léucuyer. *Bull. Soc. Ardennes Charleville* 1 1894 pp. 57-58. [*Coleoptera*.]
- 182.—Bethune-Baker, G. T. A new palearctic species of the *Lycaeninae*. *Ent. Record London* 33 1921 p. 63. [*Lepidoptera*.]
- 183.—Bezzi, M. Ditteri di Cirenaica. *Atti soc. ital. sci. nat. Milan* 60 1921 pp. 432-443. [*Diptera*.]
- 184.—Bezzi, M. Note sur le genre *Perissocerus* Gerst., avec description d'une espèce nouvelle. *Bull. soc. hist. nat. Alger* 12 1921 pp. 136-142 1 fig. [*Diptera*.]
- 185.—Bezzi, M. On the Bombyliid fauna of South Africa (*Diptera*) as represented in the South African Museum. *Ann. S. Afric. Mus. Cape Town* 18 1921 pp. 1-180 pls. i-xi.
- 186.—Bezzi, M. Additions to the Bombyliid fauna of South Africa as represented in the South African Museum. *Ann. S. Afric. Mus.* 18 1921 pp. 469-478. [*Diptera*.]
- 187.—Bezzi, M. Riduzione e scomparsa delle ali negli insetti ditteri. *Natura Milano* 7 1916 pp. 85-132 133-182 figs. 1-11. [*Diptera*.]
- 188.—Bezzi, M. Il genere *Lasiopogon* Loew. *Bull. Lab. Portici Portici* 11 1921 pp. 250-281. [*Diptera*.]
- 189.—Bickhardt, H. Die Histeriden des aethiopischen Faunengebiets. Teil I. (*Hololeptinae*, *Trypeticinae*, *Terebriinae*, *Abraeinae* und *Saprininae*.) *Arch. Natg. Berlin Abt. A* 87 Heft 6 1921 pp. 43-145 16 text-figg. [*Coleoptera*.]

- 190.—Bickhardt, H. Die Histeriden des aethiopischen Faunengebiets. Teil II. (Dendrophilinae, Tribalini und Platysomini.). Arch. Natg. Berlin Abt. A 87 Heft 6 1921 pp. 146–208 7 text-figg. [*Coleoptera.*]
- 191.—Bickhardt, H. Die Bedeutung der Histeriden (*Col.*) im Kampf gegen die Waldverderber. Zs. angew. Ent. Berlin 1 1914 pp. 381–384.
- 192.—Biener, A. Einiges über *Parn. nomion* F. de W. D. ent. Zs. Iris. Dresden 35 pp. 3–4 1921. [*Lepidoptera.*]
- 193.—Bird, H. New species and life histories in *Papaipema* Sm. Canad. Entom. Guelph 53 1921 pp. 79–81. [*Lepidoptera.*]
- 194.—Bird, H. and Jones, F. M. A new *Papaipema* from Delaware. Canad. Entom. Guelph 53 1921 pp. 137–139 pl. vi. [*Lepidoptera.*]
- 195.—Bischoff, H. Eine neue *Phylanthus* aus Eritrea. Arch. Natg. Berlin Abt. A 81 Heft 3 1915 p. 156. [*Hymenoptera.*]
- 196.—Bischoff, H. Eine neue *Trigonaloide*. Arch. Natg. Berlin Abt. A 81 Heft 3 1915 p. 157. [*Hymenoptera.*]
- 197.—Bishop, G. H. Fertilization in the Honey-bee. I. The male sexual organs: their histological structure and physiological functioning. II. Disposal of the sexual fluids in the organs of the females. J. exp. Zool. Philadelphia 31 1920 pp. 225–265 267–286.
- Black, A. B. vide Lathrop & Black.
- 198.—Blair, K. G. Types of *Heteromera* described by F. Walker now in the British Museum. Trans. ent. soc. London 1921 pp. 268–283. [*Coleoptera.*]
- 199.—Blair, K. G. Notes on the Indian species of *Hypophloeus* Fabr. with descriptions of new species. Ent. Mag. London 57 1921 pp. 1–7. [*Coleoptera.*]
- 200.—Blaisdell, F. E. Four new species of *Melyridae*. Canad. Entom. Guelph 53 1921 pp. 15–18. [*Coleoptera.*]
- 201.—Blaisdell, F. E. Miscellaneous studies in the *Coleoptera*. No. I. Canad. Entom. Guelph 53 1921 pp. 129–132.
- 202.—Blatchley, W. S. Notes on Indiana Halcitini, with characterisation of a new genus and descriptions of new species. J. New York Ent. Soc. 29 1921 pp. 16–27. [*Coleoptera.*]
- 203.—Blunck, H. Kleine Beiträge zur Kenntnis des Geschlechtslebens und der Metamorphose der Dytisciden. 3. Teil. *Agabus bipustulatus* L. Ent. Blätter Berlin 17 1921 pp. 184–194 pl. [*Coleoptera.*]
- 204.—Blüthgen, —. Die Halictus-Arten der Sammlung von Prof. Kirschbaum (Wiesbaden). Zwei neue deutsche *Halictus* (*H. kirschbaumi* und *oblongatulus* nov. spec.) (*Hym.*). Jahrb. Nassau. Ver. Wiesbaden 71 1919 pp. 191–225.
- 205.—Bodine, J. H. Factors influencing the water content and the rate of metabolism of certain *Orthoptera*. J. Exp. Zool. Philadelphia 32 1921 pp. 137–164 6 figs.
- 206.—Bodine, J. H. Some factors influencing the catalese content of organisms. J. Exp. Zool. Philadelphia 34 1921 pp. 143–148 3 figs. [*Insects.*]
- 207.—Bogdanov-Katkjov, N. Matériaux pour servir à l'étude des Gnathosines (*Coleoptera*, Tenebrionidae). Rev. Russe Ent. Petrograd 16 1916 pp. 68–71 figs 1 & 2.
- 208.—Bokor, E. Ein neuer Blindkäfer aus Ungarn. Ent. Mitt. Berlin 10 1921 pp. 110–111. [*Coleoptera.*]
- 209.—Boker, E. Beiträge zur Käferfauna Ungarns. Ent. Mitt. Berlin 10 1921 pp. 156–161, 169–174. [*Coleoptera.*]
- 210.—Bolle, H. J. Der volle Erfolg der biologischen Bekämpfung der Schildlaus des Maulbeerbaumes (*Diaspis pentagona* T.T.) Zs. angew. Ent. Berlin 3 1916 pp. 124–126. [*Homoptera.*]
- 211.—Bolle, H. J. Über die Bekämpfung des Holzböhrwurmes (*Anobium*) in einen alten Kunstwerke. Zs. angew. Ent. Berlin 3 1916 pp. 172–178. [*Coleoptera.*]

- 212.—Bolle, H. J. Die Bedingungen für das Gedeihen der Seidenzucht und deren volkswirtschaftliche Bedeutung. Zs. angew. Ent. Berlin 3 1916 pp. 210-256. [*Lepidoptera.*]
- 213.—Bolle, H. J. Die Bedingungen für das Gedeihen der Seidensucht und deren volkswirtschaftliche Bedeutung. Flug. 4 Deuts. Gesells. angew. Ent. Berlin 1916. [*Lepidoptera.*]
- 214.—Bolle, H. J. Die Ermittlung der Wirksamkeit von Insekten-tötenden Mitteln gegen die Nagekäfer des verarbeiteten Werkholzes. Zs. angew. Ent. Berlin 5 1919 pp. 105-117. [*Coleoptera.*]
- 215.—Bolton, H. A new species of Blatoid (*Archimyliacris*) from the Keele group (Radstockian) of Shropshire. Q. J. Geol. Soc. London 77 1921 pp. 23-29 1 plate 3 text-figs.
- 216.—Bonne - Wepster, Mrs. J. and Bonne, C. Notes on South American Mosquitoes in the British Museum (*Diptera, Culicidae*). pp. 1-26. [Comment on the preceding paper, by H. G. Dyar, pp. 26-31.] Insector Ins. Menstr. Washington 9 1921.
- 217.—Bonne - Wepster, Mrs. J. and Bonne, C. The first *Sabethes* larva found (*Diptera, Culicidae*). Insector Ins. Menstr. Washington 9 1921 pp. 98-99.
- 217a.—Boppe, P. *Coleoptera Longicornia*. Fam. Cerambycidae, subfam. Disteniinae-Lepturinae. Wytsman's Genera Insectorum fasc. 178 pp. 1-121 8 plates 1921.
- 218.—Borchmann, F. Die amerikanischen Gattungen und Arten der Statirinae (Unterfamilie der Lagriidae). Arch. Natg. Berlin Abt. A 87 Heft 1 1921 pp. 216-357. [*Coleoptera.*]
- 219.—Borchmann, F. Ein neuer *Othnius* von Palawan (*Col.*). Ent. Mitt. Berlin 10 1921 pp. 198 199 1 text-fig.
- 220.—Borchmann, F. Othniidae, Versuch einer Übersicht über die Familie. Arch. Natg. Berlin Abt. A 87 Heft 1 1921 pp. 191-215 28 figs. [*Coleoptera.*]
- 221.—Borelli, A. *Dermaptères* nouveaux du Muséum de Paris. Bul. Muséum Paris 1921 pp. 77-83 155-161.
- 222.—Bouchard. Précocité de printemps 1920. Riviera Scient. Nice 7 1920 p. 186. [*Lepidoptera.*]
- 223.—Boucocomt, A. *Onthophagus* nouveaux de l'Inde. Bull. Soc. ent. France Paris 1921 pp. 44-46. [*Coleoptera.*]
- 224.—Boucocomt, A. Descriptions de Coprophages des îles Philippines et de Borneo. Bull. Soc. ent. France Paris 1921 pp. 88-92. [*Coleoptera.*]
- 225.—Boucocomt, A. Synopsis des Oniticellini d'Afrique. Rev. zool. Afric. Bruxelles 9 1921 pp. 197-234. [*Coleoptera.*]
- 226.—Boucocomt, A. and Gillet, G. Fam. Scarabaeidae. Faune ent. de l'Indochine française Saigon fasc. 4 pp. 3-76 1921.
- 227.—Bourgoin, A. Description de *Cétonides* nouveaux provenant des chasses de M. L. Burgeon dans le Congo belge (1917-18) et appartenant aux collections du Muséum. Bul. Muséum Paris 1921 pp. 84-90. [*Coleoptera.*]
- 228.—Bourgoin, A. Description des *Cétonides* nouveaux recueillis par M. L. Burgeon au Congo Belge et appartenant aux collections du Muséum national d'Histoire naturelle, 2me note. Bul. Muséum Paris 1921 pp. 279-284. [*Coleoptera.*]
- 229.—Bourgoin, A. Description de *Cétonides* nouveaux recueillis par M. L. Burgeon au Congo Belge et appartenant aux collections du Muséum national d'Histoire naturelle. 3me note. Bul. Muséum Paris 1921 pp. 334-337 [*Coleoptera.*]
- 230.—Bouvier, E. L. Sur l'origine et les modifications de l'instinct des *Hyménoptères* paralyseurs. Scientia Bologna 29 1919 pp. 449-459.
- 231.—Böving, A. G. The larva of *Popillia japonica* Newman and a closely related undetermined ruteline larva, a systematic and morphological study. Proc. ent. Soc. Washington 23 1921 pp. 51-62 pls. v & vi. [*Coleoptera.*]
- 232.—Bowditch, F. C. Notes on the South American Laticas. Psyche Boston Mass. 28 1921 pp. 47-50. [*Coleoptera.*]

233.—Bowditch, F. C. South American Eumolpidae, mostly of the group Colaspini. Entomologist London **54** 1921 pp. 25–30, 72–75, 169–172, 190–195, 214–216, 234–236, 253–256. [*Coleoptera.*]

234.—Box, L. A. *Gronotoma nigricornis* Kieffer a British insect. Ent. Mag. London **57** 1921 p. 186. [*Hymenoptera.*]

235.—Box, L. A. New species of myrmecophilous *Hymenoptera*-Proctotrypoidea. Ent. Record London **33** 1921 pp. 15 & 16.

236.—Braun, Annette F. Notes on *Microlepidoptera* with descriptions of new species. Ent. News Philadelphia **32** 1921 pp. 8–18.

237.—Braun, Annette F. Some factors in the classification of the *Microlepidoptera*. Ent. News Philadelphia **32** 1921 pp. 116–118.

238.—Braun, Annette. Two Weeks collecting in Glacier National Park. Proc. Acad. Nat. Sci. Philadelphia **73** pp. 1–23 fig. [*Lepidoptera.*]

239.—Brecher, L. Die Puppenfärbungen des Kohlweisslings, *Pieris brassicae* L. (continued). Arch. Entw.-Mech. Leipzig **48** 1921. pp. 1–139 figs. [*Lepidoptera.*]

240.—Bredemann, G. Die Heuschreckenplage in Anatolien und Nordsyrien und ihre Bekämpfung im Jahre 1916. Zs. angew. Ent. Berlin **3** 1916 pp. 378–404. [*Orthoptera.*]

Bredemann, G. vide Bücher and

241.—Breit, J. Die mittelasiatischen *Pachybrachys*-Arten aus der Verwandtschaft des *P. glycyrrhizae* Ol. und *vermicularis* Suffr. Ent. Blätter Berlin **17** 1921 pp. 64–74. [*Coleoptera.*]

242.—Bresslau, E. Eier und Eizahn der einheimischen Stechmücken. Biol. Centralbl. Leipzig **40** 1920 pp. 337–355 2 plates. [*Diptera.*]

243.—Bresslau, E. und Glaser, Fr. Die Sommerbekämpfung der Stechmücken. Zs. angew. Ent. Berlin **4** 1918 pp. 290–296. [*Diptera.*]

244.—Bresslau, E. Die Winterbekämpfung der Stechmücken. Zs. angew. Ent. **4** 1918 pp. 327–331. [*Diptera.*]

245.—Brêthes, J. Quelques diptères du Chili. Rev. Chil. Hist. Nat. Santiago **22** 1918 pp. 49–50. [*Diptera.*]

246.—Brêthes, J. Sur quelques insectes du Pérou. Rev. Chil. Hist. Nat. Santiago **22** 1918 pp. 122–125 1 fig. [*Hymenoptera.*]

247.—Brêthes, J. Cueillette d'Insectes du Rio Blanco. Rev. Chil. Hist. Nat. Santiago **22** 1919 pp. 161–171; **23** pp. 40–44 1920. [*Hymenoptera, Coleoptera, Diptera.*]

248.—Brêthes, J. Quelques insectes de Manaos, avec description d'un *Platypus* (Col.) et d'un *Neomesostenus* (Hym.) nouveaux. Rev. Chil. Hist. Nat. Santiago **23** 1919 pp. 26–28. [*Coleoptera, Diptera, Lepidoptera, Aphaniptera, Hymenoptera.*]

249.—Brêthes, J. Tenthredines nouveaux de Chili. Rev. Chil. Hist. Nat. Santiago **23** 1920 pp. 49–52 2 figs. [*Hymenoptera.*]

250.—Brêthes, J. Description d'un nouveaux Homoptère Chilien. Rev. Chil. Hist. Nat. Santiago **24** 1920 pp. 10–11. [*Hemiptera.*]

251.—Brêthes, J. Description d'un nouveau Moustique du Pérou. Rev. Chil. Hist. Nat. Santiago **24** 1920 pp. 41–43 1 fig. [*Diptera.*]

252.—Brêthes, J. Description d'un nouveau Colydiid de Buénos-Aires. Bull. Soc. ent. France Paris **1921** p. 70. [*Coleoptera.*]

253.—Brêthes, J. Description d'un *Ceroplastes* de la république Argentine, et de son parasite. Bull. Soc. ent. France Paris **1921** pp. 79 & 80. [*Hemiptera.*]

254.—Bretschneider, Fr. Über das Gehirn des Wolfsmilchschwärmers (*Deilephila euphorbiae*). Jenaisch. Zs. Naturw. **57** 1921 pp. 423–462 1 pl. 10 text-figs. [*Lepidoptera.*]

255.—Brimley, C. S. The bee-flies of North Carolina. Ent. News Philadelphia **32** 1921 pp. 170–172. [*Diptera.*]

256.—Brittain, W. H. The Biology and stages of *Gypona octolineata* Say. Proc. Ent. Soc. Nova Scotia Truro **1920** 1921 pp. 12–22 pl. i. [*Orthoptera.*]

- 257.—Britton, W. E. Check-list of the insects of Connecticut. Bull. Connecticut State Geol. Nat. Hist. Surv. Hartford 31 1920 pp. 1-397.
- 258.—Britton, W. E. and Howard, L. O. William Hampton Patton. Ent. News Philadelphia 32 1921 pp. 33-39 pl. i.
- 259.—Brocher, F. L'organe pulsatile mésotergal des *Lépidoptères*. Bul. Soc. Léop. Genève 4 1919 pp. 117-122 figs.
- 260.—Brocher, F. Étude expérimentale sur le fonctionnement du vaisseau dorsal et sur la circulation du sang chez les insectes. La *Vespa crabro*. Ann. Soc. ent. France Paris 89 1921 pp. 209-232. [*Hymenoptera*.]
- 261.—Brombacher, E. Beiträge zur elsässischen *Lepidopteren*-fauna unter hauptsächlichster Berücksichtigung der näheren Umgebung von Strassburg. Int. ent. Zs. Guben 14 1921 174-176 181-182; 15 1921 pp. 23-24 40 62-64 79-80 111-112 123-124 136 158-160.
- 262.—Brown, J. M. Some Derbyshire plant-galls. ii. Naturalist London 1921 pp. 13 & 14.
- 263.—Brown, J. M. The swarming of *Collembola*. Naturalist London 1921 pp. 129 & 130.
- 264.—Bruch, C. Algunos interesantes Cerambicidos. Rev. Mus. La Plata Buenos Aires 25 1921 pp. 345-356 8 figs. [*Coleoptera*.]
- 265.—Brues, C. T. Insects and human welfare. An account of the more important relations of insects to the health of man, to agriculture and to forestry. Cambridge Mass. 1920 104 pp. 42 figs. [Review by Calvert Ent. News 32 pp. 125 & 126.]
- 266.—Brues, C. T. *vide* Tillyard, Brues & Lea.
- 267.—Brünnich, K. Die Temperatur des Bienenleibes und der Bienenblut. Zs. angew. Ent. Berlin 6 1919 pp. 84-92. [*Hymenoptera*.]
- 268.—Bryan, B. Some Notes on Wild Bees. Ann. Rep. N. Staff. F. Cl. 54 1919-20 pp. 94-99.
- 269.—Bryan, E. H. Preliminary notes on the genus *Tephritis* in Hawaii. Proc. Hawai. ent. Soc. Honolulu 4 1921 pp. 475-479. [*Diptera*.]
- 270.—Bryan, W. A. Notes from Easter island. Proc. Hawai. ent. Soc. 4 1921 p. 460. [*Coleoptera*.]
- 271.—Bryk, F. "Parnassiana." *Parnassius mnemosyne* L. in Europa. Die nordischen Rassen. Soc. Entomol. Stuttgart 36 1921 pp. 17-19 21-23 5 figs. [*Lepidoptera*.]
- 272.—Bryk, F. Ein neuer *Eurycus*. Soc. Entomol. Stuttgart 36 1921 p. 20. [*Lepidoptera*.]
- 273.—Bryk, F. Eine Konvergenzerscheinung im Sphragisbau von *Euryades* Feld. und *Tadumia* Bryk. Soc. Entomol. Stuttgart 36 1921 p. 26. [*Lepidoptera*.]
- 274.—Bryk, F. Zur Nomenklaturfrage von *Parnassius mnemosyne* var. *bohemiensis*. Soc. Entomol. Stuttgart 36 1921 p. 27. [*Lepidoptera*.]
- 275.—Bryk, F. Ueber die Zeichnungsverhältnisse von *Eucosmia undulata* L. Int. ent. Zs. Guben 14 1921 pp. 183-184 198-200 15 1921 pp. 6-8. [*Lepidoptera*.]
- 276.—Bryk, F. Antwort auf Heinrichs teilweise nicht berechnigte Kritik meiner *Eucosmia*-Formen. Int. ent. Zs. Guben 15 1921 pp. 127-128. [*Lepidoptera*.]
- 277.—Bryk, F. (u. Strand, E.) Neue exotische, insbesondere äthiopische Schmetterlinge. Arch. Natg. Berlin Abt. A 81 Heft 4 1915 pp. 1-16 1 pl. [*Lepidoptera*.]
- 278.—Bryk, F. Zur Nomenklaturfrage der schwedischen *Argynnis improba* Butl. Ent. Tidskr. Uppsala 41 1921 pp. 129-132 6 text-figg. [*Lepidoptera*.]
- 279.—Bryk, F. Neue Parnassiiden. Ent. Tidskr. Uppsala 42 1921 pp. 112-119 13 text-figs. [*Lepidoptera*.]
- 280.—Bücher, H. and others. Die Heuschreckenplage und ihre Bekämpfung. Monog. Ges. angew. Ent. Berlin 3 1918 274 pp.
- 281.—Buchner, P. Über ein neues symbiontisches organ der Bettwanze. Biol. Centralbl. Leipzig 41 1921 pp. 570-574. [*Hemiptera*.]

- 282.—Buckell, E. R. The influence of Locusts on the Ranges of British Columbia. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 23-29. [*Orthoptera*.]
- 283.—Buckle, P. A preliminary survey of the soil fauna of agricultural land. Ann. appl. Biol. Cambridge 8 1921 pp. 135-145.
- 284.—Buddenbrock, W. v. Der Rhythmus der Schreitbewegungen der Stabheuschrecke *Dysippus*. Biol. Centralbl. Leipzig 41 1921 pp. 41-48 2 figs. [*Orthoptera*.]
- 285.—Buddenbrock, W. v. Über das Vorkommen von Tonusmuskeln bei Insekten. Arch. ges. Physiol. Berlin 185 1920 pp. 1-6.
- 288.—Bugnion, E. Les insectes phosphorescents. Bull. Murith. Sion. 39 1916 pp. 82-124 4 pls. [*Coleoptera*.]
- 286.—Buhk, F. Beitrag zur Biologie des Ameisengastes *Clytra quadripunctata* L. Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 121-126 figs. [*Coleoptera*.]
- 287.—Buhk, F. Fangnetz und Lebensweise von *Holocentropus picicornis* Steph. Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 203-206 fig. [*Trichoptera*.]
- 289.—Burgst, S. v. Die wirtschaftliche Bedeutung der Schlupfwespen. Zs. angew. Ent. Berlin 5 1919 pp. 291-294. [*Hymenoptera*.]
- 290.—Burke, H. E. Biological notes on *Desmocerus*, a genus of roundhead borers, the species of which infest various elders. J. econ. Ent. Geneva N.Y. 14 1921 pp. 450-452. [*Coleoptera*.]
- 291.—Burkhardt, F. Zur Verbreitung und Lebensweise von *Otiorrhynchus rotundatus* Siebold. Zs. angew. Ent. Berlin 5 1919 pp. 295-300. [*Coleoptera*.]
- 292.—Burkhardt, F. Zur Biologie der Mehlmotte (*Ephestia kuehniella* Zeller). Zs. angew. Ent. Berlin 6 1919 pp. 25-60. [*Lepidoptera*.]
- 293.—Burkhardt, F. und Lengerken, H. v. Beiträge zur Biologie des Rapsglanzkäfers (*Meligethes aeneus* Fabr.). Zs. angew. Ent. Berlin 6 1920 pp. 270-295. [*Coleoptera*.]
- 294.—Busck, A. and Heinrich, C. On the male genitalia of the *Microlepidoptera* and their systematic importance. Proc. ent. Soc. Washington 23 1921 pp. 145-152 pls. xii & xiii.
- 295.—Butler, E. A. A Capsid new to Britain. Ent. Mag. London 57 1921 p. 30. [*Heteroptera*.]
- 296.—Butler, E. A. On *Nabis lativentris*. Ent. Mag. London 57 1921 pp. 57-61 79-81. [*Heteroptera*.]
- 297.—Buxton, P. A. Earwigs from Mesopotamia and N.W. Persia. J. Bombay Nat. Hist. Soc. 27 1921 pp. 963-964. [*Orthoptera*.]
- 298.—Buxton, P. A. Butterflies of Gilan, N.W. Persia. Ent. Record London 33 1921 pp. 29-32. [*Lepidoptera*.]
- 299.—Caesar, L. Notes on Leaf Bugs (*Miridae*) attacking fruit trees in Ontario. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 14-16. [*Hemiptera*.]
- 300.—Caesar, L. and Ross, W. A. Insects of the Season in Ontario. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 35-43.
- 301.—Caesar, L. Further data on *Phorbia brassicae*. Ann. Rep. ent. Soc. Ont. Toronto 51 1921 pp. 50-51. [*Diptera*.]
- 302.—Calabresi, E. Revisione del genere *Stratiorrhina* (Coleopt. Brentidae). Bull. Soc. ent. Ital. Firenze 51 1921 pp. 42-52 figs. 1-4.
- 303.—Calabresi, E. Nuove aggiunte alla conoscenza dei Belloferini. Bull. Soc. ent. Ital. Firenze 51 1921 pp. 58-69 figs. 1-3. [*Coleoptera*.]
- 304.—Calabresi, E. Brenthides de l'Indochine. Faune ent. de l'Indochine française Saigon fasc. 2 1921 pp. 3-13 figs.
- 305.—Calmbach, I. Ist die Züchtung von *harmuthi* und *pernoldi* ♀ ♀ und die Rückkreuzung mit *harmuthi* und *pernoldi* ♂ ♂ möglich? Soc. Entomol. Stuttgart 36 1921 pp. 45-47. [*Lepidoptera*.]
- 306.—Calvert, P. P. *Gomphus dilatatus*, vastus and a new species, *lineatifrons* (Odonata). Trans. Amer. Ent. Soc. Philadelphia 47 1921 pp. 221-232 pls. xiv & xv.

307.—Cameron, M. New species of Staphylinidae from Singapore, pt. 4 (conclusion). Trans. ent. soc. London 1920 1921 pp. 347-413. [*Coleoptera*.]

308.—Cameron, M. New species of Staphylinidae from India, ii. Ent. Mag. London 57 1921 pp. 270-274. [*Coleoptera*.]

309.—Cameron, P. [the late]. Notes on a collection of *Hymenoptera* from Greymouth, New Zealand, with descriptions of new species. Mem. Manchester Soc. 42 1898 No. 1 pp. 1-53.

310.—Cameron, P. [the late]. Description of two new species of *Mutilla* from South Africa. Mem. Manchester Soc. 42 1893 No. 2 pp. 1-3. [*Hymenoptera*.]

311.—Campbell, J. W. Notes on the Blepharoceridae of New Zealand. Tr. New Zealand Inst. Wellington 53 1921 pp. 258-288. [*Diptera*.]

312.—Campion, H. Odonata collected in New Caledonia by the late Mr. Paul D. Montague. Ann. Nat. Hist. London 8 1921 pp. 33-67 pls. viii & ix. [*Paraneuroptera*.]

313.—Campion, H. Some dragonflies and their prey, ii. With remarks on the identity of the species of *Orthetrum* involved. Ann. Nat. Hist. London 8 1921 pp. 240-245. [*Paraneuroptera*.]

314.—Campion, H. A supplementary note on Macedonian dragonflies. Entomologist London 54 1921 p. 262. [*Paraneuroptera*.]

315.—Campion, H. A note on some dragonflies from Amboina. Entomologist London 54 1921 pp. 262-264. [*Paraneuroptera*.]

316.—Candèze, L. Note sur l'habitat de l'*Epirranthis pulverator* Thnbg. (*Lepidoptera*, Geometridae). Bull. ent. soc. Belg. 3 1921 p. 81.

317.—Cappe de Baillon, P. Note sur le mecanisme de la stridulation chez *Meconema varium* Fabr. (*Orthoptera*, Phasgonuridae). Ann. Soc. ent. France Paris 90 1921 pp. 69-80.

318.—Caradja, A. Beitrag zur Kenntnis der geographischen Verbreitung der *Mikrolepidopteren* des palaearktischen Faunengebietes nebst Be-

schreibung neuer Formen. D. ent. Zs. Iris Dresden 34 1920 pp. 75-179 (continuation).

319.—Carl, J. Phasgonurides nouveaux du Muséum de Genève. Rev. Suisse Zool. Genève 28 1921 pp. 301-309. [*Orthoptera*.]

320.—Carl, J. Une espèce nouvelle de *Masaris* (Vespidae). Rev. Suisse Zool. Genève 28 1921 pp. 449-451. [*Hymenoptera*.]

321.—Caron, O. Les yeux composés des Insectes. Nat. Canad. Quebec 48 1921 pp. 97-100.

322.—Carpelan, J. Sällsyntare entomologiska fynd. Notulae Ent. Helsingfors 1 1921 p. 17. [*Lepidoptera*, *Coleoptera*.]

323.—Carpenter, G. D. H. Experiments on the Relative Edibility of Insects, with special reference to their Coloration. Trans. ent. soc. London 1921 pp. 1-105.

324.—Carpenter, G. H. Insect Transformation. London Methuen 1921 pp. x + 282 3 pls. 124 figs.

325.—Carpenter, G. H. Insecta part 1, *Collembola*. Brit. Antarctic ("Terra Nova") Expedition, 1910. Zoology 3 1921 pp. 259-266, 1 plate.

326.—Carter, H. F. A revision of the genus *Leptoconops* Skuse. Bull. ent. Res. London 12 1921 pp. 1-28. [*Diptera*.]

327.—Carter, H. J. Results of Dr. E. Mjöberg's Swedish scientific expeditions to Australia, 1910-1913. 25. Buprestidae. Ark. Zool. Stockholm 13 1921 pp. 1-6 2 figs. [*Coleoptera*.]

328.—Carter, H. J. Australian *Coleoptera*: Notes and new species. Proc. Linn. Soc. N. S. Wales Sydney 46 1921 pp. 301-323 7 text-figg.

329.—Carter, W. A new aberration of *Aricia astrarche*. Entomologist London 54 1921 pp. 249-250. [*Lepidoptera*.]

330.—Cástek, J. Ein neuer *Saturnia*-Hybrid. Int. ent. Zs. Guben 15 1921 pp. 75-77. [*Lepidoptera*.]

331.—Castellanos, C. La mosca del durazno (*Chyliza persicorum* Weyemberg). Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919 pp. 650-651. [*Diptera*.]

- 332.—Catoni, C. Die Traubenwickler (*Polychrosis botrana*, Schiff. und *Conchylis ambiguella* Hübn.) und ihre natürlichen Feinde in Südtirol. Zs. angew. Ent. Berlin 1 1914 pp. 248-259. [*Lepidoptera*.]
- 333.—Caudell, A. N. *Hippiscus olancha* Caudell, an apparently undescribed grasshopper from California. Ent. News Philadelphia 32 1921 p. 149. [*Orthoptera*.]
- 334.—Caudell, A. N. Some new *Orthoptera* from Mokanshan, China. Proc. ent. Soc. Washington 23 1921 pp. 27-35.
- 335.—Cavazza, F. Modificazione della determinazione del sesso o stimolo alla partenogenesi? Natura Milano 7 1916 pp. 61-73.
- 336.—Chaine, J. L'attaque des végétaux par les Termites. Première partie: L'invasion. Deuxième partie: La lutte contre les Termites. Rev. gén. sci. Paris 31 1920 pp. 250-255 281-285.
- 337.—Champion, G. C. Notes on various African and Asiatic species of *Laius* Guérin, with an account of their accessory ♂ characters. Ann. Nat. Hist. London 7 1921 pp. 322-343 pl. viii. [*Coleoptera*.]
- 338.—Champion, G. C. On some additional species of the genus *Hapalochrous* Er. Ann. Nat. Hist. London 7 1921 pp. 344-347. [*Coleoptera*.]
- 339.—Champion, G. C. On some additional species of *Laius* Guérin from the Malayan region. Ann. Nat. Hist. London 8 1921 pp. 193-207. [*Coleoptera*.]
- 340.—Champion, G. C. Further notes on various South African species of *Melyris* Fabr. Ann. Nat. Hist. London 8 1921 pp. 353-354. [*Coleoptera*.]
- 341.—Champion, G. C. Revision of the African species of *Helybius* Er., and its allies, with an account of their accessory ♂ characters. Ann. Nat. Hist. London 8 1921 pp. 449-494 pls. xiii & xiv. [*Coleoptera*.]
- 342.—Champion, G. C. Notes on Melandryidae (4). Ent. Mag. London 57 1921 p. 8. [*Coleoptera*.]
- 343.—Champion, G. C. *Stenus subdepressus* Rey, a British insect. Ent. Mag. London 57 1921 p. 31. [*Coleoptera*.]
- 344.—Champion, G. C. Some Indian *Coleoptera* (5). Ent. Mag. London 57 1921 pp. 70-78 104-110 145-146.
- 345.—Champion, G. C. Some Indian *Coleoptera* (6). Ent. Mag. London 57 1921 pp. 177-184 201-206.
- 346.—Champlain, A. B. The curious mating habit of *Megarhyssa atrata* Fab. Ent. News Philadelphia 32 1921 p. 241. [*Hymenoptera*.]
- 347.—Champlain, A. B. and Knull, J. N. Notes on *Coleoptera* in Pennsylvania, New York and Connecticut. Ent. News Philadelphia 32 1921 pp. 270-273.
- 348.—Chapais, J. C. L'Aphis du Melèze. Nat. Canad. Quebec 47 1920-1921 pp. 193-195. [*Hemiptera*.]
- 349.—Chapin, E. A. Remarks on the genus *Hystrihopsylla* Tasch., with description of a new species. Proc. ent. Soc. Washington 23 1921 pp. 25-27. [*Aphaniptera*.]
- 350.—Chapman, T. A. The full-grown larva of *Lycaena euphemus* Hb. Trans. ent. soc. London 1920 1921 pp. 327-330 1 pl.
- 351.—Chatanay, J. *Coleoptera*, fam. Tenebrionidae, subfam. Zophosinae. Wytzman's Genera Insectorum fasc. 176 1921 pp. 1-50 2 plates.
- 352.—Chawner, Miss E. T. The life-history of *Selandria sciva* F. Ent. Mag. London 57 1921 p. 256. [*Hymenoptera*.]
- 353.—Cheetham, C. A. Additions to Yorkshire *Diptera* list. Naturalist London 1921 pp. 409-412.
- 354.—Chobaut, A. Un *Diptère* parasite d'un Coléoptère. Bull. Soc. ent. France Paris 1921 p. 116.
- 355.—Chobaut, A. Description d'un nouveau *Styphrus* de l'Algérie méridionale. Bull. Soc. ent. France Paris 1921 pp. 296 & 297. [*Coleoptera*.]
- 356.—Chobaut, A. Description d'un nouveau *Diaphorocera* de l'Algérie méridionale. Bull. Soc. ent. France Paris 1921 p. 298. [*Coleoptera*.]

357.—Cholodkovsky, N. Notice sur *Schizoneura passerinii* Signoret. Bull. Station rég. prot. plantes Petrograd 2 1921 pp. 1-4 figs 1-3. [*Hemiptera*.]

358.—Cholodkovsky, N. Sur une nouvelle espèce du genre *Pemphigus* Hrtg., habitant d'aulnè. Bull. Station rég. prot. plantes Petrograd 2 1921 pp. 5-9 figs 1-4. [*Hemiptera*.]

359.—Cholodkovsky, N. A la mémoire de J.-H. Fabre. Rev. Russe Ent. Petrograd 16 1916 pp. lxxi-lxxxviii.

360.—Chopard, L. Report on the *Orthoptera* of Mesopotamia and Persia collected by Messrs. P. A. Buxton, M.A. and W. E. Evans, B.Sc. *Dictyoptera* and *Ensifera*. J. Bombay Nat. Hist. Soc. 27 1921 pp. 759-771 pls. i-iii.

361.—Chopard, L. Description d'une espèce nouvelle du genre *Troglophilus*. Bull. Soc. ent. France Paris 1921 pp. 147-152. [*Orthoptera*.]

362.—Christophers, S. R. The distribution of Mosquitoes in relation to the Zoogeographical areas of the Indian Empire. Rep. 4th ent. meeting Pusa Calcutta 1921 pp. 205-215 pl. xxxvii. [*Diptera*.]

363.—Cleare, L. D. Butterfly migrations in British Guiana. Trans. ent. soc. London 1920 1921 pp. 331-339.

364.—Closs, A. Die gelben Formen von *Celerio euphorbiae* L. Int. ent. Zs. Guben 15 1921 pp. 61-62. [*Lepidoptera*.]

365.—Cockayne, E. A. The white border of *Euvanesa antiopa* L. Ent. Record London 33 1921 pp. 205-209. [*Lepidoptera*.]

366.—Cockerell, T. D. A. The Epeoline Bees of the American Museum Rocky Mountain Expeditions. Amer. Mus. Novit. New York 23 1921 pp. 1-16. [*Hymenoptera*.]

367.—Cockerell, T. D. A. Western Bees obtained by the American Museum Expeditions. Amer. Mus. Novit. New York 24 1921 pp. 1-15. [*Hymenoptera*.]

368.—Cockerell, T. D. A. Australian Bees in the Queensland Museum. Mem. Queensland Mus. Brisbane 7 pp. 81-98 1921. [*Hymenoptera*.]

(N-17041 j) q

369.—Cockerell, T. D. A. Fossil Arthropods in the British Museum, v. Oligocene *Hymenoptera* from the Isle of Wight. Ann. Nat. Hist. London 7 1921 pp. 1-25.

370.—Cockerell, T. D. A. Descriptions and records of Bees, &c. Ann. Nat. Hist. London 7 1921 pp. 201-212. [*Hymenoptera*.]

371.—Cockerell, T. D. A. Fossil Arthropods in the British Museum, vi. Oligocene insects from Gurnet Bay, Isle of Wight. Ann. Nat. Hist. London 7 1921 pp. 453-480.

372.—Cockerell, T. D. A. Descriptions and records of Bees, &c. Ann. Nat. Hist. London 8 1921 pp. 359-368. [*Hymenoptera*.]

373.—Cockerell, T. D. A. Fossil Arthropods in the British Museum, vii. Ann. Nat. Hist. London 8 1921 pp. 541-545.

374.—Cockerell, T. D. A. Some British fossil insects. Canad. Entom. Guelph 53 1921 pp. 22 & 23.

375.—Cockerell, T. D. A. The bee-genus *Ancylosceles* Haliday. Ent. News Philadelphia 23 1921 pp. 76 & 77. [*Hymenoptera*.]

376.—Cockerell, T. D. A. An Ortalid fly in British amber. Entomologist London 54 1921 p. 30. [*Diptera*.]

377.—Cockerell, T. D. A. A new Asilid fly from the Madeira islands. Proc. ent. Soc. Washington 23 1921 pp. 208 & 209. [*Diptera*.]

378.—Cockerell, T. D. A. Some Eocene insects from Colorado and Wyoming. Proc. U.S. Nat. Mus. Washington 59 1921 No. 2358 pp. 29-39 pl. viii.

379.—Cockerell, T. D. A. and Sandhouse, Grace. Some Eocene insects of the family Fulgoridae. Proc. U.S. Nat. Mus. Washington 59 No. 2380 pp. 455-457 pl. xeviii. [*Homoptera*.]

380.—Cockerell, T. D. A. and Haines, F. H. Fossil Tipulidae from the Oligocene of the Isle of Wight. Entomologist London 54 1921 pp. 81-84 109-112. [*Diptera*.]

Cole, F. R. v. van. Duzee, Cole and Aldrich.

381.—Collin, J. E. A contribution towards the knowledge of the Anthomyid genera *Hammonyia* and *Hylephila* of Rondani (*Diptera*). Trans. ent. soc. London 1920 1921 pp. 305-326 5 plates.

382.—Collin, J. E. The British species of the Anthomyid genus *Limnophora* Desv. Ent. Mag. London 57 1921 pp. 94-100, 162-175, 238-248, 265-268. [*Diptera*.]

383.—Copeman, S. M. Note on the capture (in London) of a rare parasitic fly, *Hammonyia* (*Hylephila*) *unilineata* Zett. Proc. Zool Soc. London 1921 pp. 31-34 fig. [*Diptera*.]

384.—Corti, A. *Lyctocoris campestris* (Fabr.) nemico ignorato del bada da seta. Atti soc. Ital. sci. nat. 60 1921 pp. 1-10. [*Hemiptera*.]

385.—Cosens, A. Report on the insects of the year. Division No. 3. Toronto District. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 12-13.

386.—Cotte, J. Observations sur le comportement de *Blastophaga penes* L. Bull. Soc. ent. France Paris 1921 pp. 200-202. [*Hymenoptera*.]

387.—Courvoisier, L. G. Synonymie der palaearktischen *Lycaeniden* (continued). D. ent. Zs. Iris Dresden 34 1920 pp. 230-262 35 1921 pp. 54-110. [*Lepidoptera*.]

388.—Craighead, E. M. Observations on certain *Siphonaptera*. Ent. News Philadelphia 32 1921 pp. 303-308.

389.—Craighead, F. C. Larva of the North American beetle *Sandalus niger* Knoch. Proc. ent. Soc. Washington 23 1921 pp. 44-48 pl. iv. [*Coleoptera*.]

390.—Crampton, G. C. Preliminary note on the interpretation of Insectan and Myriopodan structures through a comparison with the structures of Crustacea. Trans. ent. soc. London 1920 1921 pp. 340-346.

391.—Crampton, G. C. The sclerites of the head, and the mouth-parts of certain immature and adult insects. Ann. Ent. Soc. Amer. Columbus Ohio 14 1921 pp. 65-103 8 pls.

392.—Crampton, G. C. The origin and homologies of the so-called "superlinguae" or "paraglossae" (paragnaths) of insects and related Arthropods. Psyche Boston Mass. 28 1921 pp. 84-92 pl.

393.—Crampton, G. C. Note on the surgonopods of certain *Mecoptera* and *Neuroptera*. Psyche Boston Mass. 28 1921 p. 151.

394.—Crampton, G. C. The phylogenetic origin of the mandibles of insects and their arthropodian relatives—a contribution to the study of the evolution of the *Arthropoda*. J. New York Ent. Soc. 29 1921 pp. 63-100 pls. 6-8.

395.—Crampton, G. C. A further comparison of the wings of *Zoraptera*, *Psocids* and *Aphids*, from the standpoint of phylogeny. Canad. Entom. Guelph 53 1921 pp. 110-117 pl. iii.

396.—Crampton, G. C. A phylogenetic study of the venation of the fore wings of the *Homoptera*, *Thysanoptera*, *Psocida*, *Zoraptera*, *Neuroptera*, *Embiida*, *Plecoptera* and *Hadentomoida*, with notes on the *Hymenoptera* and *Coleoptera*. Ent. News Philadelphia 32 1921 pp. 97-105 135-140 pl. ii.

397.—Crampton, G. C. A comparison of the terminal abdominal structures of *Insects* and *Crustacea*. Ent. News Philadelphia 32 1921 pp. 257-263 pl. v.

398.—Crampton, G. C. Notes on the ancestry of the *Hymenoptera*. Proc. ent. Soc. Washington 23 1921 pp. 35-40.

399.—Crawford, D. L. Honey-dew smut and photosynthesis. Proc. Hawai. ent. Soc. Honolulu 4 1921 pp. 539-550.

400.—Crawford, J. C. A new species of the chalcidid genus *Zatropis*. Proc. ent. Soc. Washington 23 1921 pp. 171 & 172. [*Hymenoptera*.]

401.—Crawford, W. M. Butterfly notes. J. Bombay Nat. Hist. Soc. 28 1921 p. 292. [*Lepidoptera*.]

402.—Crawley, W. C. New and little-known species of *Ants* from various localities. Ann. Nat. Hist. London 7 1921 pp. 87-97. [*Hymenoptera*.]

- 403.—Cresson, E. T. Studies in American Ephyridae (*Diptera*). iii. A revision of the species of *Gymnopa* and allied genera constituting the subfamily Gymnopinæ. Trans. Amer. ent. soc. Philadelphia 47 1921 pp. 325-343 1 plate.
- 404.—Criddle, N. Some Phases of the Present Locust Outbreak in Manitoba. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 19-23. [*Orthoptera*.]
- 405.—Criddle, N. The Entomological Record, 1920. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 72-90.
- 406.—Cros, A. *Hornia nymphoides* Escal. Bul. soc. hist. nat. Alger 11 1920 p. 76. [*Coleoptera*.]
- 407.—Cros, A. Contribution à l'étude des Rhipiphorides Algériens. *Macrosiagon tricuspidata* Lepechin. Bull. soc. hist. nat. Alger 11 1920 pp. 56-68 70-75. [*Coleoptera*.]
- 408.—Cros, A. *Meloe foveolatus* Guérin. (Note rectificative) Bull. soc. hist. nat. Alger 11 1920 p. 75. [*Coleoptera*.]
- 409.—Cros, A. Contribution à l'étude des Rhipiphorides algériens (addenda et corrigenda). Bull. soc. nat. hist. Algér 12 1921 pp. 19-20. [*Coleoptera*.]
- 410.—Cunliffe, M. Preliminary observations on the habits of *Oscinella frit* Linn. Ann. appl. Biol. Cambridge 8 1921 pp. 105-133. [*Diptera*.]
- 411.—Cunningham, G. H. The genus *Cordyceps* in New Zealand. With special entomological notes on the hosts, by J. G. Myers. Tr. New Zealand Inst. Wellington 53 1921 pp. 372-382 pls. lix.-lxii.
- 412.—Curran, C. H. A revision of *Syrphus* species belonging to the *ribesii* group. Canad. Entom. Guelph 53 1921 pp. 152-159. [*Diptera*.]
- 413.—Curran, C. H. New species of Syrphidae. Canad. Entom. Guelph 53 1921 pp. 171-176. [*Diptera*.]
- 414.—Cushman, F. A. North American Ichneumon-flies of the genera *Clistopyga* and *Schizopyga*. Proc. U.S. Nat. Mus. Washington 60 No. 2399 1921 pp. 1-14. [*Hymenoptera*.]
- 415.—Cushman, R. A. The males of the ichneumonid genera *Myersia* and *Thaumatotypidea*, with descriptions of new species. Proc. ent. Soc. Washington 23 1921 pp. 109-112. [*Hymenoptera*.]
- 416.—Cushman, R. A. and Gahan, A. B. The Thomas Say species of Ichneumonidae. Proc. ent. Soc. Washington 23 1921 pp. 153-171. [*Hymenoptera*.]
- 417.—Czižek, K. Die mährischen Formen der Dipterentamilie Liriopidae (Ptychopteridae). Cas. Mor. Mus. Zensk. Brünn. (Zeitschrift des Mährischen Landesmuseums) 17 1919 pp. 1-16 10 figs.
- 418.—Dadd, E. *Hydriomena coerulescens* F. (= *autumnalis* Ström, trifasciata Hb. nec Schiff) und ihre Formen. D. ent. Zs. Berlin 1921 pp. 92-94. [*Lepidoptera*.]
- 419.—Dadd, E. *Mesoleuca albicillata* f. n. *vestata*. D. ent. Zs. Berlin 1921 p. 94. [*Lepidoptera*.]
- 420.—Dahl, F. Die Trutzfarbenlehre. Zool. Anz. Leipzig 53 1921 pp. 266-273.
- 421.—Davidson, J. Biological studies of *Aphis rumicis* Linn. 1746. Ann. appl. Biol. Cambridge 8 1921 pp. 51-63. [*Homoptera*.]
- 422.—Davidson, J. Biological studies of *Aphis rumicis* L. A. Appearance of Winged Forms. B. Appearance of Sexual Forms. Sci. Proc. R. Dublin Soc. 16 (N.S.) 1921 pp. 304-322. [*Homoptera*.]
- 423.—Davidson, J. Biological studies of *Aphis rumicis* Linn. Bull. ent. Res. London 12 1921 pp. 81-89. [*Homoptera*.]
- 424.—Davidson, W. M. Observations on *Psyllobora taedata* Le Conte, a coccinellid attacking mildews. Ent. News Philadelphia 32 1921 pp. 83-89. [*Coleoptera*.]
- 425.—Davis, J. J. Contributions to a knowledge of the natural enemies of *Phyllophaga*. Bull. Illinois Survey 13 Art. V. 1919 pp. 53-138 pls. iii-xv figs. 1-46. [*Coleoptera*.]
- 426.—Davis, W. T. Records of Cicadas from N. America with descriptions of new species. J. New York Ent. Soc. 29 1921 pp. 1-15 pls. i & ii figs. [*Hemiptera*.]

- 427.—Davis, W. T. An annotated list of the Cicadas of Colorado with description of a new species. J. New York Ent. Soc. 29 1921 pp. 43-57 pl. v figs. [*Hemiptera*.]
- 428.—Dawson, R. W. New species of *Serica* (Scarabaeidae), iv. J. New York Ent. Soc. 29 1921 pp. 160-168 figs. [*Coleoptera*.]
- 429.—de Brunier, E. Une nouvelle race de *Cicindela campestris* L. (Col.) Misc. ent. Narbonne 25 pp. 42-43 1921.
- 430.—Degener. Der sogenannte Phototropismus der Raupen und sein biologischer Wert. Zs. allg. Physiol. Berlin Jena 19 1921 pp. 119-132 6 figs.
- 431.—Delahon, P. Nachträge zu "Schilskys Systematischem Verzeichnis der Käfer Deutschlands" von 1909 . . . Deutschland (Col.), x. D. ent. Zs. 1921 pp. 77-78.
- 432.—De Lapouge, G. V. Carabes nouveau ou mal connus (suite). pp. 113-128 pub. with Misc. Ent. Narbonne 25 1921. [*Coleoptera*.]
- 433.—Deletang, L. F. Observations sur les antennes de *Phloea paradoxa*, Hahn. Rev. Chil. Hist. Nat. Santiago 22 1918 pp. 144-8 1 fig. [*Hemiptera*.]
- 434.—Denier, P. Description d'une espèce nouvelle de *Meloe* paléarctique. Bull. Soc. ent. France Paris 1921 pp. 112 & 113. [*Coleoptera*.]
- 435.—Denier, P. Description d'espèces nouvelles du genre *Pseudomeloe*. Ann. Soc. ent. France Paris 89 1921 pp. 204-208. [*Coleoptera*.]
- 436.—Denier, P. Description sommaire et biologie de la larve du *Drapetes biguttatus* Piler. Bull. Soc. ent. France Paris 1921 1922 pp. 299-302. [*Coleoptera*.]
- 437.—Depoli, G. Die ostadriatischen Formen von *Cantharis obscura* L. Wien. Ent. Zeit. 38 pp. 143-144. [*Coleoptera*.]
- 438.—Desbordes, H. Études des Histeridae de l'Indochine. Faune ent. de l'Indochine Française Saigon fasc. 1 1921 pp. 13-98. [*Coleoptera*.]
- 439.—Desbordes, H. Description d'un *Hister* nouveau de Natal. Bull. Soc. ent. France Paris 1921 p. 135. [*Coleoptera*.]
- 440.—Des Gozis. Tableaux de détermination des Hydrophilides de la faune franco-rénane, notes complémentaires, pp. 209-215 (conclusion), pub. with Misc. ent. Narbonne 25 1921. [*Coleoptera*.]
- 441.—Detlefsen, J. A. and Roberts, E. Studies on crossing over. i. The effect of selection on crossover values. [*Diptera*.] J. Exp. Zool. Philadelphia 32 1921 pp. 333-354 2 text-figs.
- 442.—Deylle, J. S.-C. Contribution à la faune française (*Coleoptères*). Ann. Soc. ent. France Paris 90 1921 pp. 81-93.
- 443.—Deylle, J. S.-C. Catalogue critique des *Coleoptères* de la Corse. 2^e supplément. Ann. Soc. ent. France Paris 89 1921 pp. 377-404.
- 444.—Deylle, J. S.-C. Sur un *Nebria* récemment séparé du *N. brevicollis* F. Bull. Soc. ent. France Paris 1921 pp. 68-70. [*Coleoptera*.]
- 445.—Deylle, J. S.-C. À propos des captures en Europe de l'*Epiphanis cornutus* Eschsch. (*Prosopotropis devillei* Ab.). Bull. Soc. ent. France Paris 1921 pp. 127-131. [*Coleoptera*.]
- 446.—Deylle, J. S.-C. Sur les *Nebria brevicollis* F. et *iberica* P. d'Oliv. 2^e note. Bull. Soc. ent. France Paris 1921 pp. 157-160. [*Coleoptera*.]
- 447.—Dewitz, J. Weitere Mitteilungen über die Entstehung der Farbe gewisser Schmetterlingkokons und über ihre von den Autoren angenommene Auffassung an die Umbugung. Zool. Jahrb. Jena Abt. f. allg. Zool. 38 1921 pp. 365-404 3 plates. [*Lepidoptera*.]
- 448.—Dewitz, J. Die Puppenfärbung des Kohlweisslings, *Pieris brassicae* L. Ursachen tierischer Farbleidung. Biol. Centralbl. Leipzig 41 1921 pp. 330-335. [*Lepidoptera*.]
- 449.—Dickerson, E. L. vide Weiss and Dickerson.
- 450.—Diesterweg, K. Eine extrem melanistische Form von *Catocala sponsa* L. aus Pommern. D. ent. Zs. Berlin 1921 p. 271. [*Lepidoptera*.]
- 451.—Dietz, W. G. A list of the Crane-flies taken in the vicinity of Hazelton, Pennsylvania (*Diptera*). Trans. Amer. ent. soc. Philadelphia 47 1921 pp. 233-268.

- 452.—Dietz, W. G. The *impudica* group of the Dipterous genus *Tipula* Linnaeus. Ann. Ent. Soc. Amer. Columbus Ohio 14 1921 pp. 1-14 1 pl. [Diptera.]
- 453.—Dietz, W. G. Description of two new species of the *angustipennis* group of the Dipterous genus *Tipula* L., with table of species. Ent. News Philadelphia 32 1921 pp. 299-302.
- 454.—Dietz, W. G. A new species of *Coptodisca*. Canad. Entom. Guelph 53 1921 p. 44. [Lepidoptera.]
- 455.—Dietze, K. Ueber die Fähigkeit, getrocknete Substanzen durch Ausscheiden einer Flüssigkeit zum Aufsaugen lösbar zu machen bei *Agriades sylvanus* Esp. Ent. Rundsch. Stuttgart 38 1921 p. 1. [Lepidoptera.]
- 456.—Dietze, K. Die Zuneigung zum Weissen bei einigen Weisslingen und Anderes aus der Lebensgeschichte der *Pieriden*. D. ent. Zs. Iris Berlin 33 pp. 28-45 1919. [Lepidoptera.]
- 457.—Dietze, K. Ein Vorschlag, die Veränderungsmöglichkeit der Aberrationen durch Formeln zu versinnlichen, statt ihnen Namen zu geben; unter Versuchs weiter Anwendung auf den Kiefernspinner, *Dendrolimus pini* L. D. ent. Zs. Iris Dresden 34 1920 pp. 1-23. [Lepidoptera.]
- 458.—Di Majo, C. Come le farfalle del *Bombyx mori* possono forare i bozzoli in condizioni anormali sperimentali. Boll. Lab. Portici 11 1921 pp. 136-144. [Lepidoptera.]
- 459.—Distant, W. L. The *Heteroptera* of Indo-China. Entomologist London 54 1921 pp. 3-6 40-44 68 & 69 164-169.
- 460.—Dittrich, R. Verzeichnis der bisher in Schlesien aufgefundenen *Hymenopteren*. Jahresheft ver. Insektenk. Breslau 13 1921 pp. 25-28.
- 461.—Dodd, A. P. Notes and corrections on the Australian Proctotrypoidea, with descriptions of forty-five new species. Arch. Natg. Berlin Abt. A 80 Heft 9 1915 pp. 1-32. [Hymenoptera.]
- 462.—Dodd, A. P. Two new *Scelionidae* from Fiji. Arch. Natg. Berlin Abt. A 80 Heft 5 1914 pp. 161-162. [Hymenoptera.]
- 463.—Dodd, A. P. Four new Proctotrypoid Egg parasites of Sugar Cane Insects in Java. Arch. Natg. Berlin Abt. A 80 Heft 5 1914 pp. 162-164. [Hymenoptera.]
- 464.—Dodd, A. P. A new chalcid parasite of *Euthyrhinus mediatubundus*. Bull. ent. Res. London 12 1921 p. 67. [Hymenoptera.]
- 465.—Donisthorpe, H. *Nabis lativentris* Boh., a myrmecophilous insect. Ent. Mag. London 57 1921 pp. 136-138. [Heteroptera.]
- 466.—Donisthorpe, H. Myrmecophilous notes for 1920. Ent. Record London 33 1921 pp. 21-25.
- 467.—Donisthorpe, H. *Cionus woodi*: a species of *Coleoptera* new to science, with a table and some remarks on the British species of *Cionus*. Ent. Record London 33 1921 pp. 64-66.
- 468.—Donisthorpe, H. *Gymnetron squamicolle* Reitter, a beetle new to the britannic list. Irish Natural. Dublin 30 1921 p. 135. [Coleoptera.]
- 469.—Doormann, G. Die Mechanik des Sprunges der Schnellkäfer (Elateriden). Biol. Centralbl. Leipzig 40 1920 pp. 116-119 2 figs. [Coleoptera.]
- 470.—Dorselaer, R. van. Note sur quelques Dytiscides rares ou critiques de Belgique. Bull. ent. soc. Belg. 3 1921 pp. 82-83. [Coleoptera.]
- 471.—Dover, C. The enemies of Butterflies. J. Bombay Nat. Hist. Soc. 27 1921 pp. 642-643. [Lepidoptera.]
- 472.—Dover, C. A note on the insect-eating habits of the Indian hornet (*Vespa cincta*). J. Bombay Nat. Hist. Soc. 27 1921 p. 960 fig. [Hymenoptera.]
- 473.—Dover, C. The Moths of Barkuda island. Rec. Ind. Mus. Calcutta 22 1921 pp. 377-379. [Lepidoptera.]
- 474.—Dover, C. The Wasps and Bees of Barkuda island. Rec. Ind. Mus. Calcutta 22 1921 pp. 381-391. [Hymenoptera.]
- 475.—Dover, C. The *Dipterous* insects of Barkuda island. Rec. Ind. Mus. Calcutta 22 1921 pp. 393-396.

- 476.—Dover, C. The *Neuropteroid* insects of Barkuda island. Rec. Ind. Mus. Calcutta 22 1921 pp. 397 & 398.
- 477.—Dover, C. and Ribeiro, S. Records of some Indian *Cicindelidae*. Rec. Ind. Mus. Calcutta 22 1921 pp. 721-727. [*Coleoptera*.]
- Dover, C. *vide* Annandale and Dover.
- 478.—Drake, C. J. An undescribed *Teleonemia* from Florida and Jamaica (*Hemip.*). Florida Buggist September 1919.
- 479.—Drake, C. J. Notes on some American Tingidae, with descriptions of new species. Florida Entomologist Gainesville 1921 pp. 49-54 pl. i. [*Hemiptera*.]
- 480.—Drake, C. J. A new species of *Pachycysta* (*Hem. Het.*). Bul. Muséum Paris 1921 pp. 344-345.
- 481.—Drenowsky, A. K. Zweiter Beitrag zur *Lepidopteren*-Fauna Bulgariens. Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 163-164.
- 482.—Drenowsky, A. K. Zur *Lepidopteren*fauna Mazedoniens. Zs. Wiss. Insektenbiol. Berlin 16 1921 pp. 164-166.
- 483.—Drexler. *Lytta vesicatoria* v. *maculata* Drex. eine neue Varietät von *Lytta vesicatoria* Lin. Sod? Entomol. Stuttgart 36 1921 p. 4. [*Coleoptera*.]
- 484.—Dry, F. W. Flax caterpillars in Kenya colony, with special reference to the limitation of the roping method of combating them. Bull. ent. Res. London 12 1921 pp. 99-102. [*Lepidoptera*.]
- 485.—Dry, F. W. The red scale, *Chrysomphalus aurantii* Mask., in Kenya colony. Bull. ent. Res. London 12 1921 pp. 103 & 104. [*Homoptera*.]
- 486.—Dry, F. W. The egg parasites of the coffee bug (*Antestia lineaticollis* Stal) in Kenya colony. Bull. ent. Res. London 12 1921 pp. 191-201. [*Heteroptera*.]
- 487.—Dry, F. W. Trypanosomiasis in the absence of tsetse, and a human disease possibly carried by *Simulium* in Kenya colony. Bull. ent. Res. London 12 1921 pp. 233-238 pls. vii. & viii. [*Diptera*.]
- 488.—Dubois, E. Sphegidae de Belgique. Bull. soc. ent. Belg. 3 1921 pp. 139-166. [*Hymenoptera*.]
- 489.—Dubois, E. and Salvaza, R. V. de. Contribution à la Faune Entomologique de l'Indochine française, familles Papilionidae, Pieridae et Danaidae. Faune ent. de l'Indochine française Saigon fasc. 3 1921 pp. 7-26. [*Lepidoptera*.]
- 490.—du Buysson, H. Observations sur les mœurs du *Simulium cinereum* Macq. Misc. Ent. Narbonne 25 1921 pp. 65-66.
- 491.—du Buysson, H. *Phora fasciata* Fall. parasité par *Homalotylus eitelweinii* Pratz. Misc. Ent. 25 1921 pp. 66-67. [*Dipt. Hym.*]
- 492.—du Buysson, H. Contribution à la faune du Maroc et du nord de l'Afrique. Elaterides Col. Bull. soc. hist. nat. Alger 11 1920 pp. 12-15. [*Coleoptera*.]
- 493.—Duda. Kritische Bemerkungen zur Gattung *Scaptomyza* Hardy (*Diptera*). Jahresheft Ver. Insektenk. Breslau 13 1921 pp. 57-69 figs.
- 494.—Dudich, E. Beiträge zur Kenntnis der Stridulationsorgane der Käfer. Ent. Blätter Berlin 17 1921 pp. 136-140 145-155. [*Coleoptera*.]
- 495.—Dumont, C. Contribution à l'étude de la faune des *Microlepidoptères* de l'île d'Oléron (Charente-inférieure). Bull. soc. ent. France Paris 1921 pp. 51-56.
- 496.—Durante, D. Contributo alla conoscenza biologica della *Tingis pyri*. Boll. Lab. Portici Portici 11 1921 pp. 282-290. [*Heteroptera*.]
- 497.—Durrant, J. H. Insects associated with Grain, &c. Royal Soc. Reports of the Grain Pests (War) Committee London No. 9 1921 pp. 33-52.
- 498.—Dustan, A. G. Some notes on the Habits of *Campoplex pilosulus*, a primary parasite of the Fall Webworm. Proc. Ent. Soc. Nova Scotia Truro 1920 1921 pp. 81-88. [*Hymenoptera*.]
- 499.—Dutt, G. R. *Gracilaria soyella* Van Dev., and its parasite *Asympiesella india* Girault. Rep. 4th ent. Meeting Pusa Calcutta 1921 pp. 287-290 pl. xlix. [*Hymenoptera*.]

- Dutt, G. R. See Turner, R. E.
- 500.—Dyar, H. G. The male of *Psorophora coffini* Dyar & Knab (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 p. 31.
- 501.—Dyar, H. G. The swarming of *Culex quinquefasciatus* Say (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 p. 32.
- 502.—Dyar, H. G. Ring-legged *Culex* in Texas (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 32-34.
- 503.—Dyar, H. G. Three new mosquitoes from Costa Rica (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 34-36.
- 504.—Dyar, H. G. Notes on the North American species of *Choeroporpa* (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 37-39.
- 505.—Dyar, H. G. New American Noctuidae and notes (*Lepidoptera*). Insecutor Ins. Menstr. Washington 9 1921 pp. 40-45.
- 506.—Dyar, H. G. and Ludlow, C. S. Two new American mosquitoes (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 46-50.
- 507.—Dyar, H. G. A new mosquito from East Africa. (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 51-52 fig.
- 508.—Dyar, H. G. New forms of American moths (*Lepidoptera*). Insecutor Ins. Menstr. Washington 9 1921 pp. 59-68.
- 509.—Dyar, H. G. The American *Aedes* of the *punctor* group (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 69-80 pl.
- 510.—Dyar, H. G. Note on *Schizura apicalis* G. & R. (*Lepidoptera*, Notodontidae). Insecutor Ins. Menstr. Washington 9 1921 p. 99.
- 511.—Dyar, H. G. Change of pre-occupied name (*Lepidoptera*, Noctuidae). Insecutor Ins. Menstr. Washington 9 1921 p. 99.
- 512.—Dyar, H. G. Two new *Culex* from Costa Rica (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 p. 100.
- 513.—Dyar, H. G. The genus *Haemagogus* Williston (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 101-114.
- 514.—Dyar, H. G. Illustrations of certain mosquitoes (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 114-118 pl.
- 515.—Dyar, H. G. New American *Lepidoptera* and records. Insecutor Ins. Menstr. Washington 9 1921 pp. 137-145.
- 516.—Dyar, H. G. Two new mosquitoes from China (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 147-148.
- 517.—Dyar, H. G. The Mosquitoes of Argentina. (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 148-150.
- 518.—Dyar, H. G. The species of *Finlaya* allied to *terrens* Walker (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 151-153.
- 519.—Dyar, H. G. New mosquitoes from Costa Rica (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 154-155.
- 520.—Dyar, H. G. Note on *Melanoconion indecorabilis* Theobald (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 155-157.
- 521.—Dyar, H. G. New American moths (*Lepidoptera*). Insecutor Ins. Menstr. Washington 9 1921 pp. 192-194.
- 522.—Dyar, H. G. Note on *Culex declarator* D. & K. (*Diptera*, Culicidae). Insecutor Ins. Menstr. Washington 9 1921 pp. 194-195.
- 523.—Dyar, H. G. The larva of *Basilodes pepita* Guenée (*Lepidoptera*, Noctuidae). Insecutor Ins. Menstr. Washington 9 1921 p. 196.
- 524.—Ealand, C. A. Insect life. London. Black 1921 pp. xii + 340. [Review Crampton Ent. News 32 pp. 286-288.]
- 525.—Ebner, V. Über den feineren Bau der Flügelmuskelfasern der Insekten. Sitzber. Ak. Wiss. Wien 127 Abt. 3 (1-3) 1919 pp. 3-32 pl.

526.—Eckstein, F. Witterung und Stechmückenplage, eine biologische Studie. Zs. angew. Ent. Berlin 6 1919 pp. 93–105. [*Diptera*.]

527.—Eckstein, F. Aus einer Feldstation für Stechmücken. Biologischen Notizen. Zs. angew. Ent. Berlin 6 1920 pp. 338–371. [*Diptera*.]

528.—Eckstein, F. Beiträge zur Kenntnis des *Hylotrupes bajulus* L. Zool. Anz. Leipzig 52 1921 pp. 100–101. [*Coleoptera*.]

529.—Eckstein, F. Zur Systematik der einheimischen Stechmücken. Centralbl. Bakt. Jena Ab. I 84 1920 pp. 223–240 figs. [*Diptera*.]

530.—Edwards, F. W. New species of palaearctic Simuliidae in the British Museum. Ann. Nat. Hist. London 7 1921 pp. 141–143. [*Diptera*.]

531.—Edwards, F. W. Seven new species of *Pselliophora* (*Diptera*, Tipulidae). Ann. Nat. Hist. London 7 1921 pp. 373–378.

532.—Edwards, F. W. A note on the dipterous subfamily Ditomyiinae, with descriptions of new recent and fossil forms. Ann. Nat. Hist. London 7 1921 pp. 431–436.

533.—Edwards, F. W. A note on the subfamily Bruchomyiinae (*Diptera* Nematocera). Ann. Nat. Hist. London 7 1921 pp. 437–439.

534.—Edwards, F. W. The old-world species of *Eriocera* in the British Museum collection (*Diptera*, Tipulidae). Ann. Nat. Hist. London 8 1921 pp. 67–99 pl. x pt.

535.—Edwards, F. W. New and little-known Tipulidae, chiefly from Formosa, part ii. Ann. Nat. Hist. London 8 1921 pp. 99–115 pl. x pt. [*Diptera*.]

536.—Edwards, F. W. H. Sauter's Formosan collections, Culicidae. Ann. Nat. Hist. London 8 1921 pp. 629–632. [*Diptera*.]

537.—Edwards, F. W. British Limnobiidae: some records and corrections. Trans. ent. soc. London 1921 pp. 196–230 2 plates. [*Diptera*.]

538.—Edwards, F. W. A synonymic list of the mosquitoes hitherto recorded from Sweden, with keys for determining the genera and species. Ent. Tidsk. Uppsala 42 1921 pp. 46–52. [*Diptera*.]

539.—Edwards, F. W. Mosquito notes, ii. Bull. ent. Res. London 12 1921 pp. 69–80. [*Diptera*.]

540.—Edwards, F. W. A revision of the mosquitoes of the palaearctic region. Bull. ent. Res. London 12 1921 pp. 263–351. [*Diptera*.]

541.—Edwards, F. W. Resting positions of some nematocerous *Diptera*. Ent. Mag. London 57 1921 pp. 22–26.

543.—Edwards, F. W. *Diptera* Nematocera from Arran and Loch Etive. Scottish Natural. Edinburgh 1921 pp. 49–61 89–92 121–125.

542.—Edwards, J. On a second British species of *Priobium*, *P. kiesenwetteri*, nom. nov. = *tricolor* Kiesw. (nec Ol. nec Muls.). Ent. Mag. London 57 1921 pp. 102–104. [*Coleoptera*.]

544.—Eecke, E. van. Kasbewonende *Thysanoptera* uit Nederland. Ent. Ber. Helder 5 1921 pp. 313–314.

545.—Emmatoun, H. C. The Life history of *Telmatoscopus meridionalis* Eaton (*Dipt.*). Bul. Soc. Ent. Egypt 1920 1921 pp. 22–34 figs.

546.—Eggers, F. Notes supplémentaires sur l'organe tympanal thoracal des Noctuides et de quelques autres familles de *Lépidoptères*. Rev. Russe Ent. Petrograd 16 1917 pp. 249–265 figs. 1–7.

547.—Eggers, H. Seltene und neue paläarktische Borkenkäfer, ii. Ent. Blätter Berlin 17 1921 pp. 39–43. [*Coleoptera*.]

548.—Eichelbaum, F. Verbesserung und Zusätze zu meinem Katalog der Staphylinidengattungen aus dem Jahre 1909. Arch. Natg. Berlin Abt. A 81 Heft 5 1915 pp. 98–121. [*Coleoptera*.]

549.—Eisinger, F. Ein idealer Flugplatz von *Colias palaeno* v. *europomene* (*alpina* Spuler). Int. ent. Zs. Guben 14 1921 p. 159. [*Lepidoptera*.]

550.—Eldering, Mlle. F. J. Acquisition d'habitades par les insectes. Arch. Néerlandaises, La Haye 3 1919 pp. 469-490.

551.—Elliott, E. A. Three new Stephanidae from Java. Entomologist London 54 1921 pp. 256 & 257. [*Hymenoptera*.]

552.—Eltringham, E. Four new African species of *Neptis*. Ent. Mag. London 57 1921 pp. 26-29. [*Lepidoptera*.]

553.—Emery, C. *Hymenoptera*, Fam. Formicidae subfam. Myrmicinae. Gen. Ins. Fasc. 174a Bruxelles 1921 pp. 1-94 pls. i-vii.

554.—Emery, C. Specific names repeated in the Linnean genus *Formica*. Psyche Boston Mass. 28 1921 pp. 24-26. [*Hymenoptera*.]

555.—Emery, C. Quels sont les facteurs du polymorphisme du sex féminin chez les fourmis? Rev. gén. sci. Paris 32 1921 pp. 737-741. [*Hymenoptera*.]

556.—Emery, C. Notes critiques de Myrmécologie. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 313-319. [*Hymenoptera*.]

557.—Emilio, G. and Rasetti, F. Note Entomologica. Bull. Soc. ent. Ital. Firenze 51 1921 pp. 19-27.

558.—Emmerez de Charmoy, D. d'. Insect pests of various minor crops and fruit trees in Mauritius. Bull. ent. Res. London 12 1921 pp. 181-190.

559.—Enderlein, G. Psyllidologica, vi. Zool. Anz. Leipzig 52 1921 pp. 115-122 2 figs. [*Hemiptera*.]

560.—Enderlein, G. Zur Kenntnis der Pterocallinen. Zool. Anz. Leipzig 52 1921 pp. 211-219. [*Diptera*.]

561.—Enderlein, G. Dipterologische studien xvii. Zool. Anz. Leipzig 52 1921 pp. 219-232.

562.—Enderlein, G. Die systematische Gliederung der Simuliiden. Zugleich eine Bitte um Überlassung von Simuliidenmaterial. Zool. Anz. Leipzig 53 1921 pp. 43-46. [*Diptera*.]

563.—Enderlein, G. Ein fossiler Simuliiden-Riese. Zool. Anz. Leipzig 53 1921 pp. 74 & 75. [*Diptera*.]

564.—Enderlein, G. Beiträge zur Kenntnis aussereuropäische Ichneumoniden, v. Über die Familie Ophiionidae. Ent. Zeitung Stettin 82 1921 pp. 3-46. [*Hymenoptera*.]

565.—Enderlein, G. Beiträge zur Kenntnis aussereuropäischer Ichneumoniden, vi. Zwei neue Pimpliden. Ent. Zeitung Stettin 82 1921 pp. 46-47. [*Hymenoptera*.]

566.—Englehardt, G. P. A note on the occurrence of two Pyralids (*Lepidoptera*, Pyralidae). Insector Ins. Menstr. Washington 9 1921 p. 160.

567.—Enslin, E. Ueber Schnarrheuschrecken. Ent. Rundsch. Stuttgart 38 1921 pp. 21-22 40. [*Orthoptera*.]

568.—Enslin, E. Beiträge zur Kenntnis der *Tenthredinoidea*, vii. (*Hym.*) 13 Die Gattung *Pelmatopus* Htg. Ent. Mitt. Berlin 10 1921 pp. 181-185 3 text-figs.

569.—Enslin, E. Beiträge zur Kenntnis der *Hymenoptera*. D. ent. Zs. Berlin 1921 pp. 59-64 figs.

570.—Enslin, E. Beiträge zur Kenntnis der *Hymenopteren*, ii. D. ent. Zs. Berlin 1921 pp. 279-285 figs.

571.—Enslin, E. Beitrag zur Biologie der *Osmia xanthomelana* K. (*fusciformis* Latr.). Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 127-132 figs. [*Hymenoptera*.]

572.—Ernst, Ch. Über die psychischen Fähigkeiten der Ameisen. Jahrb. Nassau. Ver. Wiesbaden 69 1916 pp. 37-55 figs. [*Hymenoptera*.]

573.—Esaki, T. On Some Examples of Miscegenation in Insects. Konch. Sek. Gifu 25 1921 pp. 220-221.

574.—Esben-Petersen, P. Mecoptera. Coll. Selys Longchamps 5 (2) Bruxelles 1921 pp. 1-172 pls. i & ii, text-figs. 1-188. [*Neuroptera*.]

575.—Esben-Petersen, P. Description of a new genus and species of Myrmeleconidae from Japan. Videns. Medd. nat. For. Kjöbenhavn 72 pp. 127-128 fig. [*Neuroptera*.]

576.—Esben-Petersen, P. Notes concerning some *Neuroptera* in the Helsingfors Museum together with a description of *Hemerobius poppii*. Notulae Ent. Helsingfors 1 1921 pp. 38-43, figs. 1-7.

577.—Escherich, K. Schädliche und nützliche Insekten in getrocknetem und verarbeitetem Tabak. Zs. angew. Ent. Berlin 1 1914 pp. 260–265.

578.—Escherich, K. Die Maikäferbekämpfung im Bienwald (Rheinpfalz) —ein Musterbeispiel technischer Schädlingsbekämpfung. Zs. angew. Ent. Berlin 3 1916 pp. 134–156. [*Coleoptera*.]

579.—Ranninger, R. Der Mohnwurzelrüssler (*Cochliodes fuliginosus* Marsh.) seine Beschädigungen und seine Bekämpfung. Zs. angew. Ent. Berlin 3 1916 pp. 383–387.

580.—Escherich, K. Eine *Clytus*-Kalamität in der Pfalz (*Clytus* [*Plagionotus*] *arcuatus* L. [*Coleopt.*, *Cerambycidae*] als Eichenschädling). Zs. angew. Ent. Berlin 3 1916 pp. 388–397.

581.—Escherich, K. Die Maikäferbekämpfung im Bienwald (Rheinpfalz) Ein Musterbeispiel technischer Schädlingsbekämpfung. Flug. 3 Deuts. Gesells. angew. Ent. Berlin 1916.

582.—Evans, A. M. On the Structure and Occurrence of Maxillulae in the Orders of Insects. J. Linn. Soc. Zool. Lond. 34 1921 pp. 429–456 pl. 31 & 17 text-figg.

583.—Evans, W. *Cryptohypnus riparius*, a click-beetle as a possible agricultural pest. Scottish Natural. Edinburgh 1921 pp. 181–182. [*Coleoptera*.]

584.—Evans, W. H. Notes on Indian Butterflies. J. Bombay Nat. Hist. Soc. 28 1921 pp. 30–40. [*Lepidoptera*.]

585.—Everts, E. Nieuwe vondsten voor de Nederlandsche *Coleopteren* fauna xxxii, xxxiii, xxxiv. xxxv. Ent. Ber. Helder 5 1921 pp. 302–309 327–328 338–344 353–357.

586.—Everts, E. Corrigenda. Ent. Ber. Helder 5 1921 pp. 318–319. [*Coleoptera*.]

587.—Ewing, H. E. New genera and species of *Protura*. Proc. ent. Soc. Washington 23 1921 pp. 193–202 pl. xvi.

588.—Ewing, H. E. A second nearctic species of *Protura*, *Acerentulus barberi*, new species. Ent. News Philadelphia 32 1921 pp. 239–241.

589.—Fagniez, C. Deux nouveaux *Coléoptères* cavernicoles des Alpes-maritimes. Bull. Soc. ent. France Paris 1921 pp. 172–174.

590.—Fahrenholz, H. Zur Nomenklatur einiger *Anopluren*-Arten. ii. Jahresber. nathist. Ges. Hannover 62–68 1919 Zool. pp. 22–27.

591.—Fahrenholz, H. Weitere Beiträge zur Kenntnis der *Anopluren*. Arch. Natg. Berlin Abt. A 81 Heft 11 1916 pp. 1–34 1 pl. and 22 text-figg.

592.—Fahrenholz, H. Bibliographie der Läuse. (*Anopluren*.) Literatur nebst Verzeichnis der Läusearten nach den Wohntieren geordnet. Zs. angew. Ent. Berlin 6 1919 pp. 106–160.

593.—Fahringer, J. Beiträge zur Kenntnis der Lebensweise einiger Chalcididen. Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 228–235 figs. [*Hymenoptera*.]

594.—Fahringer, J. und Friese, H. Eine *Hymenopteren*-Ausbeute aus dem Amanusgebirge. (Kleinasien und Nord-Syrien, südl. Armenien.). Mit Anhang: *Bienengenus Melittoides* Friese von Prof. Dr. H. Friese. Arch. Natg. Berlin Abt. A 87 Heft 3 1921 pp. 150–180 3 text-figg.

595.—Falcoz, L. Description d'un genre nouveau et de deux espèces nouvelles de *Cryptophagidae* du nord de l'Afrique. Bull. Soc. ent. France Paris 1921 pp. 42–44. [*Coleoptera*.]

596.—Falcoz, L. Matériaux pour l'étude de la faune pholéophile. Ire note, *Diptères*, avec la description d'une espèce nouvelle de *Sphaerocera*. Bull. soc. ent. France Paris 1921 pp. 137–142.

597.—Falcoz, L. Diagnoses préliminaires de *Diptères* pupipares de Nouvelle Calédonie. Bull. soc. ent. France Paris 1921 p. 237.

598.—Falcoz, L. Notes sur divers insectes fungicoles. Miscell. ent. Narbonne 25 1921 pp. 57–62.

599.—Falkenström, G. *Coleopterologiska anteckningar*. 1–2. Ent. Tidskr. Uppsala 41 1921 pp. 133–138.

600.—Fall, H. C. The North American species of *Gyrinus* (*Coleoptera*). Trans. Amer. ent. soc. Philadelphia 47 1921 pp. 269–306 1 plate.

- 601.—Faszl, A. H. Neue und wenig bekannte *Agrias*-Formen des unteren Amazonas. Ent. Rundsch. 38 1921 pp. 9-10 12-13 18 19. [*Lepidoptera*.]
- 602.—Faszl, A. H. *Agrias*-formen vom Rio Xingu. Ent. Rundsch. 38 1921 pp. 33-34. [*Lepidoptera*.]
- 603.—Faszl, A. H. *Agrias*-formen vom Rio Manès. Ent. Rundsch. Stuttgart 38 1921 pp. 38 41-42. [*Lepidoptera*.]
- 604.—Faszl, A. H. Meine *Agrias*-Ausbeute von Itaituba am Rio Tapajoz. Ent. Rundsch. Stuttgart 38 1921 pp. 45-46 49-51. [*Lepidoptera*.]
- Felkel, J. v. Stauder and Felkel.
- 605.—Fellowes-Manson, C. E. The life history of rare and little known Sphingidae (Hawk Moths) of the Oriental Region. J. Bombay Nat. Hist. Soc. 27 1921 pp. 745-753. [*Lepidoptera*.]
- 606.—Fellowes-Manson, C. E. New localities for rare and little known Sphingidae (Hawk Moths). J. Bombay Nat. Hist. Soc. 27 1921 p. 964. [*Lepidoptera*.]
- 607.—Felt, E. P. Some of the broader aspects of insect control. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 43-49.
- 608.—Felt, E. P. Observations on *Johnsonomyia* Felt with a description of a new species. Canad. Entom. Guelph 53 1921 p. 96. [*Diptera*.]
- 609.—Felt, E. P. New Javanese Gall Midges. Treubia Buitenzorg 2 1921 pp. 89-92. [*Diptera*.]
- 610.—Felt, E. P. New species of reared gall midges (*Itonididae*). J. New York Ent. Soc. 29 1921 pp. 115-118. [*Diptera*.]
- 611.—Felt, E. P. Three new sub-tropical gall midges. Ent. News Philadelphia 32 1921 pp. 141-143. [*Diptera*.]
- Felt, E. P. *vide* Weiss and West.
- 612.—Fenton, F. A. A Study of the Phylogeny of the Antoninae. Proc. Iowa Acad. Sci. Des Moines 27 1920 pp. 337-341 2 figs. [*Hymenoptera*.]
- 613.—Fenton, F. A. New parasitic *Hymenoptera* of the subfamily Antoninae. Canad. Entom. Guelph 53 1921 pp. 70 & 71.
- 614.—Fenyès, A. *Coleoptera*, Fam. Staphylinidae, subfam. Aleocharinae (concluded). Wytzman's Genera Insectorum fasc. 173 C 1921 pp. 415-453.
- 615.—Fergusson, A. Spread of a rare rove beetle (*Phyllodrepa*, *Deliphium crenata* Grav.) in Scotland. Scottish Natural. Edinburgh 1921 pp. 99-103. [*Coleoptera*.]
- 616.—Ferguson, E. W. Revision of the Amycterides. Part vi. *Acantholophus*. Proc. Linn. Soc. N.S. Wales Sydney 46 1921 pp. 19-75. [*Coleoptera*.]
- 617.—Ferguson, E. W. Revision of the Amycterides. Part vii. *Hyborhynchus* and allied genera. Proc. Linn. Soc. N. S. Wales Sydney 46 1921 pp. 393-406. [*Coleoptera*.]
- 618.—Ferris, G. F. A new species in the Hormaphidinae (*Hemiptera*, Aphididae). Ent. News, Philadelphia 32 1921 pp. 289-291 1 plate.
- 619.—Ferris, G. F. Some Coccidae from eastern Asia. Bull. ent. Res. London 12 1921 pp. 211-220. [*Hemiptera*.]
- 620.—Ferris, G. F. Notes on Coccidae, vii & viii. A review of MacGillivray's "The Coccidae." Canad. Entom. Guelph 53 1921 pp. 57-61 91-95. [*Hemiptera*.]
- 621.—Ferton, C. Notes détachées sur l'instinct des *Hyménoptères* mellifères et ravisseurs. Ann. soc. ent. France Paris 89 1921 pp. 329-375.
- 622.—Feuerborn, H. J. Der Dipterenflügel nicht meso-, sondern metathoracal? Eine neue morphogenetische Deutung des Dipteren thorax. Zool. Jahrb. Jena Abt. f. Anat. 42 1921 pp. 529-546 5 text-figs.
- Fickendey, E. *vide* Bücher and.
- 623.—Fiedler, C. *Precis schmiedeli*. Eine neue Art aus Kamerun. D. ent. Zs. Iris Dresden 34 1920 pp. 53-55. [*Lepidoptera*.]
- 624.—Field, G. G. Some notes on the Butterflies of the plains of the U. P. J. Bombay Nat. Hist. Soc. 27 1921 pp. 641-642. [*Lepidoptera*.]
- 625.—Filippov, S. Contributions à la faune des *Lépidoptères* du gouvernement de Kaluga. Rev. Russe Ent. Petrograd 16 1917 pp. 338-342.

626.—Filipjev, N. M. Liste des *Lépidoptères* capturés en 1913 aux environs de Batum. *Rev. Russe Ent.* Petrograd 16 1917 pp. 361-367.

627.—Filipjev, N. and Djakonov, A. *Saluria lotelloides*, sp. n. (*Lepidoptera*, *Ptychinae*). *Rev. Russe Ent.* Petrograd 17 1921 pp. 124-128 figs. 1-7.

628.—Fischer, C. E. C. The enemies of Butterflies. *J. Bombay Nat. Hist. Soc.* 28 1921 p. 292. [*Lepidoptera*.]

629.—Fischer, P. Die Metamorphose von *Synagapetus ater* Klap. *Jahresber. ProvVer. Wiss. Münster* 44 1916 pp. 180-182 1 fig. [*Trichoptera*.]

630.—Fisher, W. S. New *Coleoptera* from the Philippine Is. Family *Buprestidae*, tribe *Agrilini*. *Philippine J. Sci. Manila* 18 1921 pp. 349-447.

631.—Fisher, W. S. A new *Cerambycid* beetle from California. *Proc. ent. Soc. Washington* 23 1921 pp. 206-208. [*Coleoptera*.]

632.—Fleischer, A. Bemerkenswerte Käfer-Aberationen. *Wien. Ent. Zeit.* 38 1921 p. 142. [*Coleoptera*.]

633.—Fleischer, A. Ein neuer *Euplectus* und eine neue *Reicheia* aus dem Kaukasus. *Wien. Ent. Zeit.* 38 1921 p. 145. [*Coleoptera*.]

634.—Fleischer, A. Ein neues *Staphylinidengenus* aus der Slowakei. *Wien. ent. Zeit.* 38 1921 p. 114. [*Coleoptera*.]

635.—Fleutiaux, E. Descriptions de deux genres nouveaux de *Melasiidae* (*Col.*) de la Collection du Muséum d'Histoire naturelle de Paris. *Bul. Muséum Paris* 1921 pp. 413-414.

636.—Fleutiaux, E. Deux genres nouveaux de *Coléoptères* (*Melasiidae*). *Philippine J. Sci. Manila* 18 pp. 71-72 1921.

637.—Fleutiaux, E. Deux espèces nouvelles de *Coléoptères* (*Elateridae*). *Philippine J. Sci. Manila* 18 pp. 73-74 1921.

638.—Fleutiaux, E. Études sur les *Melasiidae*. *Ann. Soc. ent. Belgique Bruxelles* 61 1921 pp. 23-41 68-87 91-108 124-145 169-191 281-309 and 383-387. [*Coleoptera*.]

639.—Fleutiaux, E. Omissions bibliographiques [from l'Agric. pratique des pays chauds. Paris 1902.] *Bull. soc. ent. France Paris* 1921 pp. 272-274.

640.—Fletcher, T. B. Surra and biting flies: a review. *Rep. 4th ent. meeting Pusa Calcutta* 1921 pp. 222-235 pl. xl. [*Diptera*.]

641.—Fletcher, T. B. Note on oviposition of *Gynacantha bainbriggei*. *Rep. 4th ent. meeting Pusa Calcutta* 1921 pp. 270-271 pl. xlv. [*Paraneuroptera*.]

642.—Fletcher, T. B. Koenig's paper on south Indian (Termites). *Rep. 4th ent. meeting Pusa Calcutta* 1921 pp. 312-333 pls. lii-lv. [*Isoptera*.]

643.—Fletcher, T. B. Setting without boards. *Rep. 4th ent. meeting Pusa Calcutta* 1921 p. 334 pl. lvi.

645.—Flury, F. Über die chemische Natur des Bienengiftes. *Arch. exper. Path. Leipzig* 85 1920 pp. 319-338 7 figs. [*Hymenoptera*.]

Foley, H. v. Sergeant, Foley and Vialatte.

646.—Fordham, W. J. *Yorkshire Coleoptera* in 1920. *Naturalist London* 1921 pp. 139-143.

647.—Fordham, W. J. Preliminary list of *Yorkshire Hemiptera Heteroptera*. *Naturalist London* 1921 pp. 333-336 & 413-417.

648.—Forsius, R. Eine neue *Schizoceriden*-Gattung mit zwei neuen Arten aus Transkaspien (*Hym. Tenth.*). *Notulae Ent. Helsingfors* 1 1921 pp. 77-79.

649.—Forsius, R. Nya eller sällsynta bin. *Notulae Ent. Helsingfors* 1 1921 pp. 88-89. [*Hymenoptera*.]

650.—Forsius, R. Kleinere Mitteilungen über *Tenthredinoiden* iii. *Notulae Ent. Helsingfors* 1 1921 pp. 107-109. [*Hymenoptera*.]

651.—Forsius, R. Nya eller sällsynta sphegider. *Notulae Ent. Helsingfors* 1 1921 p. 116. [*Hymenoptera*.]

652.—Forsius, R. and Nordström, A. Verzeichnis der aus Finland bisher bekannten *Apiden*. *Notulae Ent. Helsingfors* 1 1921 pp. 70-77. [*Hymenoptera*.]

653.—Fox, C. L. A new aberrant form of *Vanessa virginiensis* Drury (*huntera* Fabr.). *Psyche* Boston Mass. 28 1921 pp. 45–46 pl. [*Lepidoptera*.]

654.—Fox, H. Two *Orthoptera* new to New Jersey, with comments on their local habitats. *Ent. News* Philadelphia 32 1921 pp. 264–270.

655.—França, C. Sur un cas de nanisme chez *Phlebotomus papatasi* Scop. *Arch. Inst. Pasteur Afrique du Nord. Algier et Tunis* 1 1921 pp. 103–106. [*Diptera*.]

656.—França, C. et Parrot, L. Essai de classification des Phlébotomes. *Arch. Inst. Pasteur Afrique du Nord Algiers et Tunis* 1 1921 pp. 279–284 6 figs. [*Diptera*.]

657.—Fraser, F. C. Report on a collection of Dragon-flies from the Laos country. *J. Nat. Hist. Soc. Siam Bangkok* 4 1921 pp. 161–165 1 plate.

658.—Fraser, F. C. Indian Dragon-flies. Part ix. [Libellulinae contd.] *J. Bombay Nat. Hist. Soc.* 27 1921 pp. 492–498 figs. [*Paraneuroptera*.]

659.—Fraser, F. C. A list of Dragon-flies from Mahableshwar. *J. Bombay Nat. Hist. Soc.* 27 1921 pp. 540–544. [*Paraneuroptera*.]

660.—Fraser, F. C. Indian Dragon-flies. Part x. Corduliinae. *J. Bombay Nat. Hist. Soc.* 27 1921 pp. 673–691 figs. [*Paraneuroptera*.]

661.—Fraser, F. C. Indian Dragon-flies. Part xi. Aeschnidae. *J. Bombay Nat. Hist. Soc.* 28 1921 pp. 107–122 figs. [*Paraneuroptera*.]

662.—Fraser, H. M. Moorland *Lepidoptera*. *Ann. Rep. N. Staff. F. Cl.* 55 1921 pp. 63–75.

663.—Freeborn, S. B. The seasonal history of *Anopheles occidentalis* D. & K. in California. *J. econ. Ent. Geneva N.Y.* 14 1921 pp. 415–421. [*Diptera*.]

664.—Frennet, L. Note sur la *Hebria iberica*. *Bull. ent. soc. Belg.* 3 1921 pp. 101–102. [*Coleoptera*.]

665.—Frennet, L. Un Curculionide aquatique nouveau pour la faune belge. *Bull. soc. ent. Belg.* 3 1921 pp. 137–138. [*Coleoptera*.]

666.—Freund, L. Die Stigmen und Trachealatrien der *Anopluren* (Läuse). *Centralbl. Bakt. Jena Abt. I* 84 1920 pp. 142–148 4 figs.

667.—Frey, R. Studien über den Bau des Mundes der niederen *Diptera Schizophora* nebst bemerkungen über die Systematik dieser Dipterengruppe. *Acta Soc. Fauna et Fl. Fenn. Helsingfors* 48 1921 No. 3 245 pp. 10 plates.

668.—Frey, R. Eine neue paläarktische Chloropiden-gattung (*Dipt. Schizophora*). *Notulae Ent. Helsingfors* 1 1921 pp. 80–81.

669.—Frey, R. Beitrag zur Kenntnis der paläarktischen Thereviden (*Dipt.*). *Notulae Ent. Helsingfors* 1 1921 pp. 81–85.

670.—Frey, R. Beschreibung einer neuen *Pedicia* Art aus dem nördlichen Europa (*Diptera*, Tipulidae). *Notulae Ent. Helsingfors* 1 1921 pp. 110–111 figs.

671.—Frey-Gessner, E. Tables analytiques pour la détermination des *Hymenoptères* du Valais (suite). *Bull. Murith. Sion* 38 1914 pp. 50–123; 39 1916 pp. 226–300.

672.—Frickhinger, H. W. Über das Geruchsvermögen der Kleiderlaus (*Pediculus corporis* de Geer. *vestimenti* Nitzsch). *Zs. angew. Ent. Berlin* 3 1916 pp. 263–281. [*Anoplura*.]

673.—Frickhinger, H. W. Blausaure im Kampf gegen die Mehlmotte (*Ephestia kuehniella* Zeller). *Zs. angew. Ent. Berlin* 4 1918 pp. 129–140. [*Lepidoptera*.]

674.—Frickhinger, H. W. Blausäureräucherung im Dienste der Mehlschädlingbekämpfung. *Zs. angew. Ent. Berlin* 1918 pp 310–324.. [*Lepidoptera*.]

675.—Frickhinger, H. W. Die Kleidermotte (*Tineola biselliella* Hummel) als Schädling in zoologischen Sammlungen. *Zs. angew. Ent. Berlin* 6 1920 pp. 400–404. [*Lepidoptera*.]

676.—Friederichs, K. Über die Pleophagie des Insektenpilzes *Metarrhizium anisophae* (Metsch.) Sor. *Centralbl. Bakt. Jena Abt. 2* 50 1920 pp. 335–356 1 pl.

677.—Friederichs, K. Die angewandte Entomologie als selbständige Disziplin. *Centralbl. Bakt. Jena Abt. 2* 54 1921 pp. 486–491.

678.—Friederichs, K. Über Kribbelmücken und Gnitzen. Schweiz. Archiv. für Thierheilk. Zürich 63 1921 pp. 7–19 62–71 9 figs. [*Diptera*.]

679.—Friederichs, K. Studien über Nashornkäfer als Schädlinge der Kokospalme. Monog. Zs. angew. Ent. Berlin 4 Parey Berlin 1919 116 pp. [*Coleoptera*.]

680.—Friederichs, K. *Placaederus obesus* Gah., ein gefährlicher Feind des Kapokbaumes. Zs. angew. Ent. Berlin 5 1919 pp. 226–230. [*Coleoptera*.]

681.—Friederichs, K. Untersuchungen über Simuliiden. Zs. angew. Ent. Berlin 6 1919 pp. 61–83. [*Diptera*.]

682.—Friederichs, K. Untersuchungen über Rapsglanzkäfer in Mecklenburg. Zs. angew. Ent. Berlin 7 1921 pp. 1–36. [*Coleoptera*.]

683.—Friese, H. Eine neue Bienen gattung *Melittoides* n. gen. (*Hym.*). Arch. Natg. Berlin Abt. A 87 Heft 3 1921 pp. 177–180 1 text-fig.

684.—Friese, H. Ueber einige für Deutschland weniger bekannte Bienen und eine Grabwespe (*Hym.*). Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 161–163.

685.—Friese, H. Ein lehrreiches Nest von *Andrena* (Sandbiene) ? *labialis* K. (*Hym.*). Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 201–202.

686.—Friese, H. Nachtrag zur Bienenfauna von Costa Rica. Ent. Zeitung Stettin 82 1921 pp. 74–98. [*Hymenoptera*.]

Friese, H. *vide* Fahringer and Friese.

687.—Frings, C. F. *Pararge* var. *egerides* Stgr. saisondimorph. Soc. Entomol. Stuttgart 36 1921 p. 25. [*Lepidoptera*.]

688.—Frisch, K. v. Über den Sitz des Geruchsinnes bei Insecten. Zool. Jahrb. Jena Abt. f. allg. Zool. 38 1921 pp. 449–516 2 plates 7 text-figs.

689.—Frison, T. H. New distribution records for North American *Bremidae*, with the description of a new species. Ent. News Philadelphia 32 1921 pp. 144–148. [*Hymenoptera*.]

690.—Fritze, A. Zur Kenntnis der *Orthopteren*fauna der Provinz Hannover. Jahresber. nathist. Ges. Hannover 62–68 1919 Zool. pp. 38–47.

691.—Fruhstorfer, H. Revision der Gattung *Lampides* auf Grund anatomischer Untersuchungen. Arch. Natg. Berlin Abt. A 81 Heft 6 1916 pp. 1–46 2 pls. 1 text-fig. [*Lepidoptera*.]

692.—Fruhstorfer, H. *Rhopaloceren* aus Holländisch-Neu-Guinea. Arch. Natg. Berlin Abt. A 81 Heft 11 1916 pp. 61–78 2 pls. [*Lepidoptera*.]

693.—Fruhstorfer, H. Beiträge zur Kenntnis der Gattung *Didonis*. Arch. Natg. Berlin Abt. A 81 Heft 12 1916 pp. 1 & 2 1 pl. [*Lepidoptera*.]

694.—Fruhstorfer, H. *Vila*, eine anatomische Wundergattung. Arch. Natg. Berlin Abt. A 81 Heft 12 1916 pp. 3–5 1 pl. [*Lepidoptera*.]

695.—Fruhstorfer, H. Die *Orthopteren* der Schweiz und der Nachbarländer auf geographischer sowie oekologischer Grundlage mit Berücksichtigung der fossilen Arten. Arch. Natg. Berlin Abt. A 87 Heft 5 1921 pp. 1–262.

696.—Fruhstorfer, H. Neue und seltene *Parnassius*-Rassen. Soc. Entomol. Stuttgart 36 1921 pp. 13–15.

697.—Fruhstorfer, H. Tessiner Wanderbilder iii. Soc. Entomol. Stuttgart 36 1921 pp. 19–20 23–24 27–28. [*Lepidoptera*.]

698.—Fruhstorfer, H. Neue *Parnassius mnemosyne*-Rassen. Soc. Entomol. Stuttgart 36 pp. 41–42 1921. [*Lepidoptera*.]

699.—Fruhstorfer, H. Neue *Parnassius apollo*-Rassen. Ent. Anz. Wien 1 1921 pp. 29–31 77–80 87–89. [*Lepidoptera*.]

700.—Fruhstorfer, H. Neue und interessante *Parnassius apollo*-Rassen. Ent. Anz. Wien 1 1921 pp. 41–42 65–66. [*Lepidoptera*.]

701.—Fruhstorfer, H. Die *Parnassius apollo*-Rassen der Südschweiz. Ent. Anz. Wien 1 1921 pp. 43–44 53–56. [*Lepidoptera*.]

702.—Fruhstorfer, H. Neues über altebekannte *Parnassius apollo*-Rassen. Ent. Anz. Wien 1 1921 pp. 112–115 129–131 139–142. [*Lepidoptera*.]

703.—Fruhstorfer, H. Neue *Parnassius*-Rassen. Ent. Rundsch. Stuttgart 38 1921 pp. 13–14 16–17 20–21. [*Lepidoptera*.]

704.—Fuente, J. M. de la. Nota sobre Coleópteros Españoles. Bol. Soc. Ibérica Zaragoza 19 (2) 1920 pp. 149-151. [Coleoptera.]

705.—Fuente, J. M. de la. Catálogo sistemático-geográfico de los Coleopteros observados en la península ibérica, Pirineos propiamente dichos y Baleares. Bol. Soc. ent. España Zaragoza 4 1921 pp. 19-32 34-43 53-68 74-89 106-121 138-153.

706.—Fuller, C. The Termites of South Africa; being a preliminary notice. S. Afric. J. Nat. Hist. Pretoria 3 1921 pp. 14-52. [Isoptera.]

707.—Fulmek, L. Zur Kenntnis der Raupe und Puppe von *Bucculatrix thoracella* Mbg. Zs. angew. Ent. Berlin 6 1920 pp. 330-337 11 text-figs. [Lepidoptera.]

Fulmek, L. vide Ruschka and Fulmek.

708.—Funkhouser, W. D. New genera and species of Philippine Membracidae. Philippine J. Sci. Manila 18 1921 pp. 679-687 1 plate. [Homoptera.]

709.—Gahan, A. B. Remarks on the genus *Pleurotropis* with description of a parasite of *Trachelus tabiclus* Fabricius. Proc. ent. Soc. Washington 23 1921 pp. 113-119. [Hymenoptera.]

Gahan, A. B. vide Cushman and Gahan.

710.—Galant, S. Ein kratzreflex des geköpften *Carabus auratus*. Biol. Centralbl. Leipzig 40 1920 pp. 335-6. [Coleoptera.]

711.—Galli-Valerio, B. Beobachtungen über Culiciden. Centralbl. Bakt. Jena Ab. I 86 1921 pp. 31-33. [Diptera.]

712.—Garman, H. Some neglected setae of *Lepidopterous* larvae. Ann. Ent. Soc. Amer. Columbus Ohio 14 1921 pp. 145-149 13 text-figg.

713.—Garrett, C. B. D. Notes on Helomyzidae and descriptions of new species (Diptera). Insecutor Ins. Menstr. Washington 9 1921 pp. 119-132.

714.—Gaud, A. Coléoptères: Dispersion de quelques espèces; nouvelles stations. Bull. Murith. Sion 38 1914 pp. 44-49.

715.—Gaudin, L. Captures de Coléoptères de France. Bull. Soc. ent. France Paris 1921 pp. 114-116.

(N-17041 j) q

716.—Gautier, C. et Riel, P. Complément de description et de biologie d'*Apanteles rubecula* Marshal, parasite de *Pieris rapae*, L. Bull. Soc. ent. France Paris 1921 pp. 143-147. [Hymenoptera.]

717.—Gautier, C. Description de deux espèces nouvelles, *Trioxyx placidus* et *Alloxysta gautieri* J. J. Kieffer. Bull. Soc. ent. France Paris 1921 1922 pp. 302-307. [Hymenoptera.]

718.—Gavoy, M. L. Quelques jours dans la vallée d'Aure (Hautes-Pyrénées). Misc. ent. Narbonne 25 1921 pp. 81-85 89-94. [Coleoptera.]

719.—Gebien, H. Coleoptera-Tenebrionidae von Juan Fernandez. The natural history of Juan Fernandez and Easter Island ed. by C. Skottsberg Uppsala 3 1921 pt. 1 pp. 29-30.

720.—Gebien, H. Die Tenebrioniden Westafrikas. Arch. Natg. Berlin Abt. A. 86 Heft 6 1921 pp. 1-256 47 figs. [Coleoptera.]

721.—Gerhardt, U. Neue Studien über Copulation und Spermatophoren von Grylliden und Locustiden. Acta Zool. Stockholm 2 1921 pp. 293-327 4 figs. [Orthoptera.]

722.—Gerould, J. H. Blue-green caterpillars; the origin and ecology of a mutation in haemolymph color in *Colias* (*Eurymus*) *philodice*. J. Exp. Zool. Philadelphia 34 1921 pp. 385-415 1 text-fig. 1 col. plate. [Lepidoptera.]

723.—Geschwendtner, L. Beiträge zur Kenntnis und Bestimmung palaarktischer Schwimmkäfer (*Haliphidae* und *Dytiscidae*). Ent. Anz. Wien 1 1921 pp. 56-61. [Coleoptera.]

724.—Ghosh, C. C. Supplementary observations on borers in sugar-cane, rice, etc. Rep. 4th ent. meeting Pusa Calcutta 1921 pp. 105-136 pls. xvi-xxv.

725.—Gibson, A. E. and others. Conference on the European corn borer. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 60-62. [Lepidoptera.]

726.—Giffard, W. M. The systematic value of the male genitalia of Delphacidae (Homoptera). Ann. Ent. Soc. Amer. Columbus Ohio 14 1921 pp. 135-140 4 text-figg. [Hemiptera.]

b 3

727.—Giffard, W. M. Recent observations on *Plagithmysus* spp. and *Nesotocus munroi* at Kilanea Hawaii. Proc. Hawaii, ent. soc. Honolulu 4 1921 pp. 490-492. [*Coleoptera.*]

728.—Giglio-Tos, E. *Orthoptera* Fam. Mantidae subfam. Eremiaphilinae. Wytsman's Genera Insectorum fasc. 177 1921 pp. 1-36 2 plates.

Gillett, G. v. Boucomont and Gillett.

729.—Gillmer, M. Erwiderung betreffend die Ueberwinterung des Eies der *Argynnis daphne* Schiff. Int. ent. Zs. Guben 14 1921 pp. 157-158. [*Lepidoptera.*]

730.—Gillmer, M. Die Fibonacci-Reihe und sein Ende. Int. ent. Zs. Guben 15 1921 pp. 46-48. [*Lepidoptera.*]

731.—Girault, A. A. Miscellaneous species of Chalcid-flies from Australia (*Hymenoptera*, Chalcididae). Insector Ins. Menstr. Washington 9 1921 pp. 186-191.

732.—Girola, C. D. Destrucción de la *Diaspis pentagona*, Targ. por medio de la *Prospaltella berlesesi* How. en la Argentina. Prim. Réunion. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919 pp. 645-9. [*Hemiptera.*]

Glaser, Fr. *vide* Bresslau and Glaser.

Godfrey, E. J. v. Riley and Godfrey.

733.—Goetghebuer, M. Chironomides de Belgique. Mém. Mus. Belgique Bruxelles 8 1921 fasc. 4 pp. 1-208 233 figs. [*Diptera.*]

734.—Goetghebuer, M. Nouvelle contribution à l'étude des Chironomides de Belgique. Bull. soc. ent. Belg. 3 1921 pp. 167-176 figs. [*Diptera.*]

735.—Goetghebuer, M. Les Dixidae de Belgique. Bull. soc. ent. Belg. 3 1921 pp. 183-188 figs. [*Diptera.*]

736.—Goetghebuer, M. and Tonnoir, A. Catalogue raisonné des *Tipulidae* de Belgique (continuation). Bull. soc. ent. Belg. 3 1921 pp. 47-58 105-125 figs. [*Diptera.*]

737.—Golovjanko, Z. Sur "l'épistoma" de Schiödte. Rev. Russe Ent. Petrograd 16 1917 pp. 328-330 figs. 1 & 2. [*Coleoptera.*]

738.—Goodrich, E. S. Note on the *Hymenoptera* parasitic on Beetles in-

festing grain. Royal Soc. Reports of the Grain Pests (War) Committee London No. 9 1921 pp. 5-7.

739.—Gorham, R. P. Some notes on *Apanteles hyphantria* Riley. Proc. Ent. Soc. Nova Scotia Truro 1920 1921 pp. 46-50. [*Hymenoptera.*]

740.—Gorham, R. P. A method of making photographic prints of insect wings. Canad. Entom. Guelph 53 1921 pp. 161 & 162.

741.—Gornostaev, P. Contributions à la faune des Scolytiens du gouvernement de Petrograd (*Coleoptera*, Ipidae). Rev. Russe Ent. Petrograd 16 1917 pp. 308-315.

742.—Götz, W. Zur Bionomie der Insekten, iv. Vom Geruchssinn der Bienen. Soc. Entomol. Stuttgart 36 1921 pp. 37-39. [*Hymenoptera.*]

743.—Grabe, A. *Tephroclystia palustraria* Dbld. (*pygmaeata* Hb.). Int. ent. Zs. Guben 14 1921 pp. 154-156 172-174 15 1921 pp. 3-4. [*Lepidoptera.*]

744.—Grabe, A. Grossschmetterlingsfauna des mittleren Ruhrkohlengebietes. Int. ent. Zs. Guben 15 1921 pp. 137-140 153-157. [*Lepidoptera.*]

745.—Grandi, G. Nota su due Agaonini dell' Australia. Boll. Lab. Portici Portici 11 1921 pp. 145-159. [*Hymenoptera.*]

746.—Grandi, G. Contributo alla conoscenza degli Agaonini di Ceylon e dell' India. Boll. Lab. Portici Portici 11 1921 pp. 183-234. [*Hymenoptera.*]

747.—Grandori, R. La biologia della fillossera della vite alla luce delle nuove ricerche. Natura Milano 4 1913 pp. 1-54 pls. i & ii. [*Hemiptera.*]

748.—Graves, P. P. Collecting in Asia Minor in 1920. Ent. Record London 33 1921 pp. 41-48. [*Lepidoptera.*]

749.—Green, E. E. On a new genus of Coccidae from the Indian region. Ann. Nat. Hist. London 8 1921 pp. 639-644. [*Homoptera.*]

750.—Green, E. E. Observations on British Coccidae, with descriptions of new species (continuation) vi, vii. Ent. Mo. Mag. London 57 1921 pp. 146-152 189-200 257-259. [*Homoptera.*]

751.—Green, E. E. and Laing, F. Coccidae from the Seychelles. Bull. ent. Res. London 12 1921 pp. 125-128. [*Homoptera*.]

752.—Greene, C. T. A new genus of Bombyliidae. Proc. ent. Soc. Washington 23 1921 p. 23. [*Diptera*.]

753.—Greene, C. T. *Dipterous* parasites of saw-flies. Proc. ent. soc. Washington 23 1921 pp. 41-43.

754.—Greene, C. T. Two new species of *Diptera*. Proc. ent. Soc. Washington 23 1921 pp. 125-127.

755.—Greene, C. T. An illustrated synopsis of the puparia of 100 muscoid flies. Proc. U.S. nat. Mus. Washington 60 No. 2405 1921 pp. 1-39 pls. i-xx. [*Diptera*.]

Greenwood, W. *vide* Veitch and Greenwood.

756.—Grey, O. [H. Rowland Brown.] Nature Study and War. Études de Lépidoptérologie comparée. Fasc. 18 Rennes 1921 1e Partie pp. 9-39 (reprinted from "The Times" *Literary Supplement*).

757.—Griffini, A. La rigenerazione delle zampe negli Ortoteri saltatori. Natura Milano 2 1911 pp. 16-26 39-56 2 figs. [*Orthoptera*.]

758.—Griffini, A. Studi sui Lucanidi. Nuove osservazioni sulla grande variazione di caratteri nei maschi dei Lucanidi. Natura Milano 9 1918 pp. 80-123 figs. i & ii. [*Coleoptera*.]

759.—Griffini, A. Sui concetti di nanismo e di gigantismo, proposti come applicabili alle variazioni individuali nei maschi dei Lucanidi. Natura Milano 10 1919 pp. 13-46 figs. 1-4. [*Coleoptera*.]

760.—Griffini, A. Intorno a teorie ed ipotesi sulla evoluzione dei Coleotteri. Natura Milano 10 1919 pp. 133-145. [*Coleoptera*.]

761.—Grimpe, G. Beiträge zur Biologie von *Phyllium bioculatum* G. R. Gray (*Phasmidae*). Zool. Jahrb. Jena Abt. f. syst. 44 1921 pp. 227-266 1 plate 6 text-figs. [*Orthoptera*.]

762.—Gušić, B. Ein Beitrag zur *Rhopaloceren*-fauna Sloveniens. Glasnik hrv. prirodos. društvo Zagreb 33 pp. 210-212 1921.

(n-17041 j) q

763.—Guthier, A. Sur le "trompette" chez les Bourdons (*Hymenoptera*, *Apidae*). Rev. Russe Ent. Petrograd 16 1917 pp. 331-333.

764.—Habermehl, H. Gezogene parasitische *Hymenoptera* aus Bayern. D. ent. Zs. 1921 pp. 81-83 185-186.

765.—Habermehl, H. Eine interessante Ichneumonidenausbeute aus der Sahara. (*Hym.*). D. ent. Zs. Berlin 1921 pp. 266-268.

766.—Hacker, H. Catalogue of Australian Bees. Mem. Queensland Mus. Brisbane 7 1921 pp. 99-163.

767.—Haecker, V. Zur Fliegenplage in Wohnungen und Lazaretten. Zs. angew. Ent. Berlin 3 1916 pp. 204-209. [*Diptera*.]

768.—Haenel, K. Maikäferplage und Vogelschutz. Zs. angew. Ent. Berlin 5 1919 pp. 34-42. [*Coleoptera*.]

769.—Haffer, O. Bau und Funktion der Sternwarzen von *Saturnia pyri* Schiff. und die Haarentwicklung der Saturnidenraupen. Ein Beitrag zu dem Thema: Das Arthropodenhaar. Arch. Natg. Berlin Abt. A 87 Heft 2 1921 pp. 110-166 46 figs. [*Lepidoptera*.]

Haines, F. H. *vide* Cockerell and Haines.

770.—Hall, A. Descriptions of three new butterflies from Colombia. Entomologist London 54 1921 pp. 278 & 279. [*Lepidoptera*.]

771.—Hamilton, C. C. Notes on the life history and the control of the box wood leaf midge. J. econ. Ent. Geneva N.Y. 14 1921 pp. 359-365 pl. iv. [*Diptera*.]

772.—Handschin, E. *Collembolen* aus Java. Rev. Suisse Zool. Genève 23 1921 pp. 135-145.

773.—Hansen, V. Tillaeg og Rettelser til von Billefortegnelser (Additions, &c., *Col.* Denmark). Ent. Medd. 13 1921 pp. 338-341.

774.—Hardy, G. H. A preliminary revision of some genera belonging to the *Diptera* Brachycera of Australia. Proc. Linn. Soc. N. S. Wales Sydney 46 1921 pp. 285-300 16 text-figs.

775.—Harms, B. Die Larven der Flöhe als Träger von Krankheits-erregern. Verh. Deut. Gesell. angew. Ent. Berlin 1919 pp. 122-130. [*Siphonaptera*.]

Harrison, J. W. H. *vide* Bagnall and Harrison.

776.—Hartzell, A. Further notes on the life-history of the potato leafhopper (*Empoasca mali* Le Baron). J. econ. Ent. Geneva N.Y. 14 1921 pp. 62-68. [*Homoptera*.]

777.—Harvey, E. J. Isle of Wight Disease in Hive Bees. (3) Experiments on Infection with *Tarsonemus woodi*, n. sp. Trans. R. Soc. Edinburgh 52 1921 pp. 765-767. [*Hymenoptera*.]

Harvey, E. J. *vide* Rennie, White and Harvey.

778.—Harwood, P. *Anthonomus cinctus* Kollar in Britain. Ent. Mag. London 57 1921 p. 226. [*Coleoptera*.]

779.—Harwood, P. *Aradus betulae* L., an addition to the British Hemiptera-Heteroptera. Ent. Mag. London 57 1921 pp. 227-229.

780.—Hase, A. Zur Frage des "Lebendiggebärens" der Kleiderlaus. Centralbl. Bakt. Jena Ab. I 85 pp. 377-379 1921. [*Anoplura*.]

781.—Hase, A. Beiträge zu einer Biologie der Kleiderlaus (*Pediculus corporis* de Geer=*vestiment* Nitzsch). Zs. angew. Ent. Berlin 2 1915 pp. 265-359. [*Anoplura*.]

782.—Hase, A. Ein Beitrag zur Fliegenplage. Zs. angew. Ent. Berlin 3 1916 pp. 116-123. [*Diptera*.]

783.—Hase, A. Über die Bekämpfung der Bettwanzen (*Cimex lectularius* L.) mittels Cyanwasserstoff (Blausäure). Zs. angew. Ent. Berlin 4 1918 pp. 297-309. [*Hemiptera*.]

784.—Hase, A. Die Bekämpfung der Läuse, Wanzen und anderer Parasiten; insbesondere die Bekämpfung mittels Blausäure. Verh. Deut. Gesell. angew. Ent. 5 1919 pp. 88-105.

785.—Hase, A. Über ein Massenaufreten der Schmeißfliege *Calliphora vomitoria* L. Zs. angew. Ent. Berlin 5 1919 pp. 258-260. [*Diptera*.]

786.—Hase, A. Die Bettwanze (*Cimex lectularius* L.) ihr Leben und ihre Bekämpfung. Monog. z. angew. Ent. 1 Berlin 1917 144 pp. [*Hemiptera*.]

787.—Hase, A. Beiträge zu einer Biologie der Kleiderlaus (*Pediculus*

corporis de Geer=*vestimenti* Nitzsch). Flug. 1 Deut. Gessells. angew. Ent. Berlin 1915. [*Anoplura*.]

788.—Hasebroek, K. Zum Gedächtnis an August Selzer. Int. ent. Zs. Guben 15 1921 pp. 49-53.

789.—Hasebroek, K. Die Dopaoxydase (Bloch) ein neues melanisierendes Ferment im Schmetterlingsorganismus. Biol. Centralbl. Leipzig 41 1921 pp. 367-373 3 figs. [*Lepidoptera*.]

790.—Hauser, G. Eine Berichtigung zu *Apotomopterus cupreus* G. H. Soc. Entomol. Stuttgart 36 1921 p. 24. [*Coleoptera*.]

791.—Hauser, G. Die *Damaster-Coptolabrus*-Gruppe der Gattung *Carabus*. Zool. Jahrb. Jena Abt. f. Syst. 45 1911 pp. 1-394 plates i-ii. [*Coleoptera*.]

792.—Haviland, Maud D. The experimental production of winged forms in an Aphid, *Myzus ribis* Linn. Ann. appl. Biol. Cambridge 8 1921 pp. 101-104. [*Homoptera*.]

793.—Hayes, W. P. *Strigoderma arboricola* Fab.—its life-cycle. Canad. Entom. Guelph 53 1921 pp. 121-125. [*Coleoptera*.]

794.—Hearle, E. Some mosquito problems of British Columbia. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 66-70. [*Diptera*.]

795.—Hebard, M. Studies in the *Dermaptera* and *Orthoptera* of Colombia, second paper, Blattidae, Mantidae and Phasmidae. Trans. Amer. Ent. Soc. Philadelphia 47 1921 pp. 107-169 3 plates.

796.—Hebard, M. Mexican records of Blattidae (*Orthoptera*). Trans. Amer. ent. soc. 47 1921 pp. 199-220 1 plate.

797.—Hebard, M. The *janeirensis* group of the genus *Euboriellia*, with the description of a new species (*Dermaptera*). Trans. Amer. ent. soc. Philadelphia 47 1921 pp. 319-324 2 plates. [*Orthoptera*.]

798.—Hebard, M. South American Blattidae from the Museum National d'Histoire Naturelle, Paris, France. Proc. Acad. Nat. Sci. Philadelphia 73 pp. 193-304 1921 (pp. 240-304 plates 9-15 1922). [*Orthoptera*.]

799.—Hebard, M. A note on panamanian Blattidae with the description of a new genus and two new species. Ent. News Philadelphia 32 1921 pp. 161–169 pl. iii. [*Orthoptera*.]

800.—Hedwig, K. Edmund Reitter, Albert Jander, Joseph Ränder. Jahreshefte Ver. Insektenk. Breslau 13 1921 pp. 21–23.

801.—Heikertinger, F. Welchen Quellen entspringen die biologischen Trachthypothesen? Zool. Anz. Leipzig 53 1921 pp. 286–297.

802.—Heikertinger, F. Die morphologisch-analytische Methode in der Kritik der Mimikryhypothese, dargestellt an der Wespenmimikry (Sphekoidie) der Bockkäfer. Zool. Jahrb. Jena Abt. f. Syst. 44 1921 pp. 267–296 1 plate.

803.—Heikertinger, F. Ueber die angebliche Giftwirkung des Coccinellidblutes. Wien. Ent. Zeit. 38 1921 pp. 109–113. [*Coleoptera*.]

804.—Heikertinger, F. *Psylliodes affinis* Payk., der Kartoffelerdfloh. ii. Teil. Morphologie und Bionomie der Imago. Zs. angew. Ent. Berlin 2 1915 pp. 10–28. [*Coleoptera*.]

805.—Heikertinger, F. Insekten als Heilmittel. Zs. angew. Ent. Berlin 4 1918 pp. 369–373.

806.—Heikertinger, F. Nomenklaturprinzipien und wissenschaftliche Praxis. Zs. angew. Ent. Berlin 5 1919 pp. 301–313.

807.—Heikertinger, F. Bestimmungstabelle der Halticinengattung *Psylliodes* aus dem paläarktischen Gebiete mit Ausschluss Japans und der Kanarischen Inseln. i. Die ungeflügelten Arten. Kol. Rundschau Wien 9 1921 pp. 39–62. [*Coleoptera*.]

808.—Heikertinger, F. Die paläarktischen Arten der Halticinengattung *Batophila* Fondr. (*Glyptina* Lec.). Kol. Rundschau Wien 9 1921 pp. 89–98. [*Coleoptera*.]

Heinrich, C. vide Busck and Heinrich.

809.—Heinrich, R. Bemerkungen zu Bryks Aufsatz "Ueber die Zeichungsverhältnisse von *Eucosmia undulata* L." Int. ent. Zs. Guben 15 1921 p. 110. [*Lepidoptera*.]

810.—Hellén, W. *Koleopterologische Mitteilungen aus Finnland i & ii. Notulae Ent. Helsingfors* 1 1921 pp. 43–46 97–103.

811.—Hellén, W. Veränderungen in der Kenntnis der Insektenfauna Finnlands bis zum Jahr 1921. *Notulae Ent. Helsingfors* 1 1921 pp. 59–64 92–96 120–128.

812.—H[eller], K. Ottokar Nickerl. D. ent. Zs. Iris Dresden 34 1920 pp. 263–266.

813.—Heller, K. M. Systematische und faunistische Notizen über Käfer. Ent. Mitt. Berlin 10 1921 pp. 195–198. [*Coleoptera*.]

814.—Heller, K. M. Philippinische Melandryidae. Ent. Blätter Berlin 17 1921 pp. 155–157. [*Coleoptera*.]

815.—Henriksen, K. L. Det første danske Fund af *Protura*. Ent. Medd. Kjöbenhavn 13 1921 p. 296.

816.—Henriksen, K. L. Et nyt Tilfoelde af *Hypoderma bovis* hos Mennesket. (*H. bovis* on man). Ent. Medd. Kjöbenhavn 13 1921 p. 297. [*Diptera*.]

817.—Henriksen, K. L. Nye og sjældne Bladhvepse, Gravehvepse og Gedehamse. Ent. Medd. Kjöbenhavn 13 1921 p. 343. [*Hymenoptera*.]

818.—Herbert, F. B. The genus *Matsucoccus* with a new species. Proc. ent. Soc. Washington 23 1921 pp. 15–22 pl. iii. [*Homoptera*.]

819.—Herbst, P. Neue chilenische Blumenwespen. Rev. Chil. Hist. Nat. Santiago 24 1920 pp. 8–9. [*Hymenoptera*.]

820.—Herbst, P. Neue chilenische Grabwespen (Sphegidae). Rev. Chil. Hist. Nat. Santiago 24 1920 pp. 35–6. [*Hymenoptera*.]

821.—Herbst, P. Nuevas duispas antófilas de Chile. Rev. Chil. Hist. Nat. Santiago 22 1918 pp. 149–152. [*Hymenoptera*.]

822.—Herbst, P. *Lithurgus muticus* n. sp. Rev. Chil. Hist. Nat. Santiago 22 1919 pp. 176–7. [*Hymenoptera*.]

823.—Herbst, P. Zur Synonymie chilenischer Blumenwespen. (Apidae, *Hymenoptera*). Ent. Zeitung Stettin 82 1921 pp. 99–101.

824.—Herbst, P. Über einige chilenische *Hymenopteren*, welche Griboodo erwähnt. Ent. Zeitung Stettin 82 1921 pp. 102–107.

825.—Herbst, P. Über chilenische *Hymenopteren*, welche Brèthes erwähnte. Ent. Zeitung Stettin 82 1921 pp. 108–112.

826.—Hering, I. Gustav Bornemann. D. ent. Zs. Iris Dresden 35 1921 p. 53.

827.—Hering, M. Zur Biologie und systematischen Stellung von *Scythris temperatella* Led. D. ent. Zs. Iris Berlin 32 1919 pp. 122–129 figs. [*Lepidoptera*.]

828.—Hering, M. Für die Mark neue Kleinschmetterlinge. D. ent. Zs. Berlin 1921 p. 91. [*Lepidoptera*.]

829.—Hering, M. Minenstudien II. Neue Blattminen, Neubeschreibung von *Rhamphus oxyacanthae* Marsh. und eine Bestimmungstabelle der Blattminen an *Crataegus* L. D. ent. Zs. Berlin 1921 pp. 123–147 figs. [*Lepidoptera*, &c.].

830.—Hering, M. 25 Kleinschmetterlinge und Fliegen neu für die Mark Brandenburg. D. ent. Zs. Berlin 1921 pp. 273–276. [*Lepidoptera*, &c.].

831.—Hering, M. Die geographische Verbreitung der Libytheiden. Arch. Natg. Berlin Abt. A 87 Heft 4 1921 pp. 248–296 2 pls. [*Lepidoptera*.]

832.—Hermann, F. Dr. L. Zürcher's *Dipteren*-Ausbeute aus Paraguay: Mydaiden und Asiliden. Arch. Natg. Berlin Abt. A 87 Heft 1921 3 pp. 118–122.

833.—Hermes, W. B. Distributional and ecological notes on anopheline mosquitoes in California. J. econ. Ent. Geneva N.Y. 14 1921 pp. 410–414. [*Diptera*.]

834.—Herold, W. Zur Kenntnis von *Agrotis segetum* Schiff. (Saateule). Zs. angew. Ent. Berlin 5 1919 pp. 47–59. [*Lepidoptera*.]

835.—Herold, W. Zur Kenntnis von *Agrotis segetum* Schiff. (Saateule) II. Die herangewachsene Raupe. Zs. angew. Ent. Berlin 6 1920 pp. 302–329. [*Lepidoptera*.]

836.—Herrmann, E. Über besondere Zellelemente im Fettkörper der Fliege. Zool. Anz. Leipzig 52 1921 pp. 193–200. [*Diptera*.]

837.—Herrmann, E. Nachtrag zur Schmetterlings-Fauna von Frankfurt a. O. Helios Berlin 28 1916 pp. 137–142. [*Lepidoptera*.]

838.—Hess, A. Die Kohlweissling-plage in der Schweiz im Sommer 1917. Zs. angew. Ent. Berlin 4 1918 pp. 332–334. [*Lepidoptera*.]

839.—Hewitt, C. G. Bureau Imperial d'Entomologie, Nat. Canad. Quebec 46 1921 pp. 221–226.

840.—Heyde, H. C. van der. Quelques observations sur la psychologie des fourmis. Arch. Néerlandaises La Haye 4 1920 pp. 259–281 figs. 1–9. [*Hymenoptera*.]

841.—Heymons, R. Die Frassfiguren der Hypoborinae. Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 81–90. [*Coleoptera*.]

842.—Heymons, R. Die Bekämpfung der Mülenschädlinge. Verh. Deut. Gesell. angew. Ent. Berlin 1919 pp. 34–51.

843.—Heyrovský, L. Doplněk ke klímovu katalogu Českých brouků, Cerambycidae. Časopis Praze (Prague) 16 1919 pp. 25–26. [*Coleoptera*.]

844.—Heyrovský, L. Několik pozorování ze života brouků. Časopis Praze 17 1920 pp. 21–23. [*Coleoptera*.]

845.—Heyrovský, L. Noví čeští kůrovci. Časopis Praze 18 1921 pp. 36–37. [*Coleoptera*.]

846.—Heyrovský, L. Noví brouci pro Čechy. Časopis Praze 18 1921 p. 37. [*Coleoptera*.]

847.—Hill, C. A. A new noctuid from California. Ent. News Philadelphia 32 1921 p. 105. [*Lepidoptera*.]

848.—Hill, G. F. The bionomics of *Tabanus aprepes* and other Australian Tabanidae. Bull. ent. Res. London 12 1921 pp. 41–62. [*Diptera*.]

849.—Hill, G. F. The life-history of *Euthyrrhinus mediatundus*, Fabr., an important pest of mango trees in Australia. Bull. ent. Res. London 12 1921 pp. 63–68 pl. iii. [*Coleoptera*.]

850.—Hill, G. F. Notes on some *Diptera* found in association with Termites. Proc. Linn. Soc. N. S. Wales Sydney 46 1921 pp. 216–220 9 text-figg.

- 851.—Hill, G. F. *Coptotermes raffrayi* Wasman (Fam. Termitidae.) Proc. Linn. Soc. N. S. Wales Sydney 46 1921 pp. 263–267 15 text-figg. [*Isoptera*.]
- 852.—Hill, G. F. New and rare Australian Termites, with notes on their Biology. Proc. Linn. Soc. N. S. Wales Sydney 46 1921 pp. 433 pl. xxxvi and 52 text-figg. [*Isoptera*.]
- 853.—Hinch, J. W. de. The post-glacial climatic optimum in Ireland. Irish Natural. Dublin 30 1921 pp. 85–96.
- 854.—Hingston, R. W. G. A naturalist in Himalaya. London Witherby 1920 pp. xii + 300 pls.
- 855.—Hoffmann, [A.] Düngung und Insektenbefall. Zs. angew. Ent. Berlin 3 1916 pp. 257–262.
- 856.—Hoffmann, A. Beitrag zur Sammeltechnik. Ent. Anz. Wien 1 1921 pp. 8–10 18–21 33–34 44–46 69–72 80–82 92–94.
- 857.—Höhne, W. Eine neue *Erioscelis* (Col. Dyn.). D. ent. Zs. Berlin 1921 pp. 108–9.
- 858.—Höhne, W. *Paramesus reticulatus* (Horváth), eine für Deutschland und die Mark Brandenburg neue Zikade. D. ent. Zs. Berlin 1921 pp. 94–96. [*Hemiptera*.]
- 859.—Holland, W. J. A new species belonging to the genus *Goodia*. Proc. ent. Soc. Washington 23 1921 pp. 99 & 100 pl. vii. [*Lepidoptera*.]
- 860.—Holste, G. *Calosoma sycophanta* L. seine Lebensgeschichte und Gewohnheiten und seine erfolgreiche Ansiedlung in Neuengland. Eine Besprechung nebst einigen Bemerkungen über *Calosoma inquisitor* L. Zs. angew. Ent. Berlin 2 1915 pp. 413–421. [*Lepidoptera*.]
- 861.—Holstebro, H. O. L. Andersen. Ent. Medd. Kjöbenhavn 13 1921 pp. 293–295.
- 862.—Holze, A. Eine neue Form von *Dicycla oo* L. Int. ent. Zs. Guben 15 1921 pp. 78–79. [*Lepidoptera*.]
- 863.—Holze, A. Gustav Bornemann. Int. ent. Zs. Guben 14 1921 pp. 185–186.
- 864.—Hopp, W. Notizen über Daleridae (*Lep.*) nebst Beschreibung neuer Arten. Arch. Natg. Abt. A 87 Heft 2 1921 pp. 276–282 6 text-figg.
- 865.—Horn, W. Haben Ur-*Phaexantha*-Formen den "Ameghino-Strom" bewohnt? (Col.). Ent. Mitt. Berlin 10 1921 pp. 149–150.
- 866.—Horn, W. Beitrag zur Faunistik und Lebensweise der Cicindelinae des tropischen Afrika. Ent. Blätter Berlin 17 1921 pp. 172–184. [*Coleoptera*.]
- 867.—Horváth, G. Description d'un Fulgoride nouveau des dattiers. Bull. Soc. hist. nat. Alger 12 1921 pp. 179–180. [*Hemiptera*.]
- 868.—Horváth, G. Die Nomenklatur der Psylliden-Gattungen *Livia* Latr. und *Diraphia* Waga. D. ent. Zs. Berlin 1921 pp. 181–184. [*Hemiptera*.]
- 869.—Horváth, G. Genera duo nova Scutelleridarum. Ann. Mus. Hungar. Budapest 18 1921 pp. 145 & 146. [*Heteroptera*.]
- 870.—Houlbert, C. Revision monographique de la Famille des Cymatophoridae. Ét. Léop. comp. Rennes 18 1921 pt. 2 pp. 23–252 pls. 438–439 and 68 text-figg. [*Lepidoptera*.]
- 871.—Houlbert, C. Les insectes : anatomie et physiologie générales. 2nd ed. Paris Doin 1920 pp. xii + 374 207 figs.
- 872.—Houlbert, C. Les Coléoptères d'Europe : France et régions voisines. Tome premier Paris Doin 1921. [Review Ent. Mag. 57 p. 157.]
- Howard, L. O. vide Britton and Howard.
- 873.—Howe, R. H. *Sympetrum atripes* (Hagen) a good species. Ent. News Philadelphia 32 1921 pp. 80–82. [*Paraneuroptera*.]
- 874.—Howlett, F. M. Protective movements and range of vision in Platypezid flies. Rep. 4th ent. meeting Pusa Calcutta 1921 pp. 279–286 pl. xlviii. [*Diptera*.]
- 875.—Howlett, F. M. The practical application of insect psychology. Rep. 4th ent. meeting Pusa Calcutta 1921 pp. 368–380.

876.—Hudson, G. V. Description of a new species of the *Lepidopterous* genus *Melanchra* Hübn. from New Zealand. *Ent. Mag. London* 57 1921 p. 255.

877.—Hudson, H. F. The present status of the Hessian Fly in Western Ontario. *Ann. Rep. Ent. Soc. Ont. Toronto* 51 1921 pp. 32–34. [*Diptera*.]

878.—Hudson, H. F. Insects of the season, 1920. *Ann. Rep. Ent. Soc. Ont. Toronto* 51 1921 pp. 34–35.

Hukkinen, Y. v. Linnaniemi and Hukkinen.

879.—Hurst, C. P. East Wiltshire Plant-Galls. *Wilts. Archaeol. Mag. Devizes* 41 1921 pp. 354–364.

880.—Hussey, R. F. Distributional notes on *Hemiptera*, with the description of a new *Gerris*. *Psyche Boston Mass.* 28 1921 pp. 8–15 figs.

881.—Hustache, A. Contribution à la faune entomologique du Japon; *Coleoptères Curculionides*. *Bul. Muséum Paris* 1921 pp. 91–95.

882.—Hustache, A. Curculionides des îles Mascareignes. *Ann. Soc. ent. France Paris* 89 1921 pp. 113–203 pls. iv–viii. [*Coleoptera*.]

883.—Hyslop, J. A. Genotypes of the Elaterid beetles of the world. *Proc. U.S. Nat. Mus. Washington* 58 1921 No. 2353 pp. 621–680. [*Coleoptera*.]

884.—Iljin, B. S. Observations sur *Parandra caspia* Mén. (*Coleoptera*, *Cerambycidae*); description de sa larve et de sa nymphe. *Rev. Russe Ent. Petrograd* 16 1917 pp. 285–298 figs 1–11.

885.—Iohn, O. Пузыреногие (Thysanoptera) Петроградской губ. [*Thysanoptera* of the Government of Petrograd.] *Faunae Petropolitanae Catalogus Petrograd* 2 No. 1 1921 pp. 1–16.

886.—Irwin-Smith, V. Studies in Life-histories of Australian *Diptera* Brachycera. Part i. *Stratiomyidae* No. 2. Further experiments in the rearing of *Metoponia rubriceps*. *Proc. Linn. Soc. N. S. Wales* 46 1921 pp. 252–255 8 text-figg.

887.—Irwin-Smith, V. Studies in the life-histories of Australian *Diptera* Brachycera. Part i. *Stratiomyidae*

No. 3. On the structure of the mouth-parts and pharynx of the larval *Metoponia rubriceps*. *Proc. Linn. Soc. N. S. Wales* 46 1921 pp. 425–432 pl. xxxiii and 26 text-figg.

888.—Isnard, P. Cétoines et Fourmis. *Riviera Scient. Nice* 7 1920 pp. 176–179. [*Coleoptera*, *Hymenoptera*.]

889.—Isnard, P. Clavigers et Fourmis. *Riviera Scient. Nice* 8 1921 pp. 29–33. [*Coleoptera*, *Hymenoptera*.]

890.—Iyengar, M. O. L. A preliminary note on new thoracic appendages in anopheline larvae. *Rep. 4th ent. meeting Pusa Calcutta* 1921 pp. 216–218 pl. xxxviii. [*Diptera*.]

891.—Jacobson, E. Beobachtung an *Hymenopus coronatus* Oliv. *Traubia Buitenzorg* 2 1921 p. 136. [*Orthoptera*.]

892.—Jacobson, G. De genere *Thelyterotaro* Weise (*Coleoptera*, *Chrysomelidae*). *Rev. Russe Ent. Petrograd* 16 1917 pp. 266–274.

893.—Jacobson, G. Contributions à la morphologie et classification de quelques genres de la sousfamille Chrysomelini. *Bull. Station rég. prot. plantes Petrograd* 2 1921 pp. 20–24. [*Coleoptera*.]

894.—Jaehn, Paul. Die Geschichte des *Nematus* Frasses auf dem Kgl. Sächs. Staatsforstrevier Naunhof bei Leipzig. *Zs. angew. Ent. Berlin* 1 1914 pp. 283–320. [*Hymenoptera*.]

895.—Jameson, A. P. and Atkins, W. R. G. On the Physiology of the Silkworm. *Biochem. Journ. Cambridge* 15 1921 pp. 209–212.

896.—Jamil, J. *Plécoptères* sud-américains nouveaux. *Ann. Soc. ent. Belgique Bruxelles* 61 1921 pp. 109–112.

897.—Janson, O. E. *Stenopelmus rufinasus* Gyll., an addition to the list of British *Coleoptera*. *Ent. Mag. London* 57 1921 p. 225.

898.—Jansson, A. *Coleopterologiska bidrag*. 1–3. *Ent. Tidskr. Uppsala* 41 1921 pp. 81–96 1 fig.

Joakimoff *vide* Popoff and Joakimoff.

899.—Joannis, J. de. Les *Lithocolletis* des érables. *Ann. Soc. ent. France Paris* 89 1921 pp. 405–416. [*Lepidoptera*.]

- 900.—Johannsen, O. A. The genus *Diamasa* Meigen. Ent. News Philadelphia 32 1921 pp. 229–232. [Diptera.]
- 901.—John, O. New species of *Leucanitis* Gn. (Lepidoptera, Noctuidae). Rev. Russe Ent. Petrograd 17 1921 pp. 40–52.
- 902.—Johnson, C. W. A new Ptinid for New England. Psyche Boston Mass. 28 1921 p. 7. [Coleoptera.]
- 903.—Johnson, C. W. *Okanagana rimosa* (Say) in Nova Scotia. Psyche Boston Mass. 28 1921 p. 15. [Homoptera.]
- 904.—Johnson, C. W. A Review of the American Species of the genus *Palloptera*. Psyche Boston Mass. 28 1921 pp. 20–23 figs. [Diptera.]
- 905.—Johnson, C. W. New Diptera from Texas and Mexico. Psyche Boston Mass. 28 1921 pp. 56–59.
- 906.—Johnson, W. F. Irish Ichneumonidae and Braconidae in 1920. Irish Natural. Dublin 30 1921 pp. 104–107. [Hymenoptera.]
- 907.—Joicey, J. J., and Talbot, G. New forms of Rhopalocera. Bull. Hill Mus. London 1 1921 pp. 44–103 pls. v–xvi. [Lepidoptera.]
- 908.—Joicey, J. J., and Talbot, G. New Heterocera [African]. Bull. Hill Mus. London 1 1921 pp. 158–166. [Lepidoptera.]
- 909.—Joicey, J. J., and Talbot, G. Descriptions of new forms of *Lepidoptera* from the island of Hainan. Bull. Hill Mus. London 1 1921 pp. 167–177 pls. xix–xxiv.
- 910.—Joicey, J. J., and Talbot, G. New forms of Sphingidae. Entomologist London 54 1921 pp. 105–109. [Lepidoptera.]
- 911.—Jones, E. D. Descriptions of new moths from South-East Brazil. Proc. Zool Soc. London 1921 pp. 323–356 pls. i–iii.
- Jones, F. M. *vide* Bird and Jones.
- 912.—Jordan, H. E. Studies on striped muscle structure. vi. The comparative histology of the leg and wing muscle of the wasp, with special reference to the phenomenon of stripe reversal during contraction and to the genetic connection between contractile bands and intercalated discs. Amer. J. Anat. Philadelphia 27 1920 pp. 1–66.
- 913.—Jordan, K. On the replacement of a lost vein in connection with a stridulating organ in a new Agaristid moth from Madagascar, with descriptions of two new genera. Novit. Zool. Tring 28 1921 pp. 68–74. [Lepidoptera.]
- 914.—Jordan, K. Two new African Sphingidae. Novit. Zool. Tring 28 1921 pp. 277–279. [Lepidoptera.]
- 915.—Jordan, K. H. C. Über die Beziehungen von *Stomoxys calcitrans* L. (Wadenstecher) zur spinalen Kinderlähmung. Zs. angew. Ent. Berlin 1 1914 pp. 272–276. [Diptera.]
- 916.—Jordan, K. H. C. Über künstliche Infizierung des Heuwurms (*Cochylis ambiguella* Hübn. und *Polychrosis botrana* Schiff.) mit Schmarotzerinsekten. Zs. angew. Ent. Berlin 2 1915 pp. 149–157. [Lepidoptera.]
- 917.—Jörgensen, P. Los Tricópteros Argentinos. Prim. Reun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919 pp. 389–399 2 figs. [Trichoptera.]
- 918.—Joy, N. H. *Phyllodrepa linearis* Zett., a new British Staphylinid beetle. Ent. Mag. London 57 1921 p. 142. [Coleoptera.]
- 919.—Jureček, S. Vědecké výsledky Československé armády v Rusku a na Sibiři. II. *Gaurotes nigriventris* n. sp. Cerambycidae (Col.). Časopis Praze 18 1921 pp. 25–26.
- 920.—Jurriaanse, J. H. and Lindemans, J. Een nieuwe *Attacus*-vorm van Bali. Tijdschr. Ent. 's-Gravenhage 64 1921 pp. 12 & 13. [Lepidoptera.]
- 921.—Kahn, R. H. Über Schildrüsenfütterung an Wirbellosen [Insect larvae]. Arch. ges. Physiol. Berlin 192 1921 pp. 81–92.
- 922.—Kanda, S. Physico-Chemical studies in Bioluminescence. III. The Production of Light by *Luciola vitticollis* is an oxidation. Amer. J. Physiol. Baltimore 53 1920 pp. 137–149 3 figs.
- 923.—Kandélaki, S. La fièvre pappataci et *Phlebotomus* en Georgie et dans les pays voisins. Travaux du Museum de Georgie Tiflis No. 1 1920 pp. 1–46 pls. i–iii text-figs 1–6. [Diptera.]

924.—Karny, H. Die neuen australischen *Thysanopteren* der Mjöberg-Ausbeute. (Vorläufige Mitteilung). *Časopis Prazs* 17 1920 pp. 36-44.

925.—Karny, H. H. Katydid (Tettigonioides) of the Philippine Islands, collected by C. F. Baker. *Philippine J. Sci. Manila* 18 1921 pp. 607-617. [*Orthoptera*.]

926.—Karny, H. H. Ergänzung zu Priesner's "*Haylothrips*-studien" Die Australischen Haplothripinen. *Treubia Buitenzorg* 2 1921 pp. 21-36 2 figs. [*Thysanoptera*.]

927.—Karny, H. H. Beiträge zur Malayischen Thysanopterenfauna. IV. Thysanopteren von *Hevea*. V. Thysanopteren an Tee. *Treubia Buitenzorg* 2 1921 pp. 37-83 25 figs.

928.—Kaupp, B. F. The depluming louse of the fowl: *Lipeurus variabilis*. *J. Comp. Path. Ther. Edinburgh* '33 1920 pp. 295-6 1 fig. [*Mallophaga*.]

929.—Keilin, D. On the life-history of *Dasyhelea obscura* Winnertz, with some remarks on the parasites and hereditary bacterian symbiont of this midge. *Ann. Nat. Hist. London* 8 1921 pp. 576-590 pls. xix-xx. [*Diptera*.]

930.—Keilin, D. On some *Dipterous* larvae infesting the branchial chambers of land-crabs. *Ann. Nat. Hist. London* 8 1921 pp. 601-608.

931.—Keilin, D. Supplementary account of the *Dipterous* larvae feeding upon molluscs. *Parasitology Cambridge* 13 1921 pp. 180-183.

Keilin, D. *vide* Nuttall and Keilin.

932.—Kennedy, C. H. Some interesting dragon-fly naiads from Texas. *Proc. U.S. Nat. Mus. Washington* 59 No. 2390 1921 pp. 595-598 pl. cxv. [*Paraneuroptera*.]

933.—Kern, P. Beiträge zur Biologie der Carabiden. *Ent. Blätter Berlin* 17 1921 pp. 162-172. [*Coleoptera*.]

934.—Kernewitz, B. Spermiogenese bei Lepidopteren mit besonderer Berücksichtigung der Chromosomen. *Arch. Natg. Berlin Abt. A* 81 Heft 1 1915 pp. 1-34 3 pls. 14 text-figs. [*Lepidoptera*.]

935.—Kertész, K. Vorarbeiten zu einer Monographie der Notacanthiden xxxix-xliv. *Ann. Mus. Hungar. Budapest* 18 1921 pp. 153-176. [*Diptera*.]

936.—Kessel, F. Neue Monotomiden, Cucujiden u. Passandriden aus der Sammlung des Deutschen Entomologischen Museums in Berlin. *Arch. Natg. Berlin Abt. A* 87 Heft 6 1921 pp. 25-33. [*Coleoptera*.]

937.—Kessel, F. Über die Stellung der Passandridae im System. *Arch. Natg. Berlin Abt. A* 87 Heft 6 1921 pp. 33-35. [*Coleoptera*.]

938.—Keys, J. H. *Coethormiocerus attaphilus* Bris., an addition to the British *Coleoptera*. *Ent. Mag. London* 57 1921 pp. 100-102 pl. i.

939.—Kheil, N. M. *Melitaea matura* Linné v Cechách. *Časopis Prazs* 18 1921 pp. 24-25. [*Lepidoptera*.]

940.—Kieffer, J. J. Sur quelques *Diptères* piqueurs de la tribu des Ceratopogoninae. *Arch. Inst. Pasteur Afrique du Nord Algiers and Tunis* 1 1921 pp. 107-116.

941.—Kieffer, J. J. Nouvelles observations sur les *Diptères* piqueurs de la tribu des Ceratopogoninae. *Arch. Inst. Pasteur Afrique du Nord Algiers and Tunis* 1 1921 pp. 262-268.

942.—Kieffer, J. J. Deux nouvelles Chironomides d'Égypte (*Diptera*). *Bull. Soc. Ent. Égypte* 1920 1921 pp. 18-21.

943.—Kieffer, J. J. Chironomides de l'Afrique équatoriale. 1re partie. *Ann. Soc. ent. France Paris* 90 1921 pp. 1-56 pls. i & ii. [*Diptera*.]

944.—Kieffer, J. J. Diagnoses de nouveaux genres et espèces de Chironomides. *Bull. Soc. ent. France Paris* 1921 pp. 287-289. [*Diptera*.]

945.—Kieffer, J. J. Chironomides des Philippines et de Formose. *Philippine J. Sci. Manila* 18 1921 pp. 557-593. [*Diptera*.]

945a.—Kieffer, J. J. Synopse de la tribu des Chironomariae (*Diptères*). *C. R. Ann. Soc. Sci. Bruxelles* 40 1921 pp. 269-277.

946.—Kiritschenko, A. Contributions à la faune de *Hémiptères-Hétéroptères* du gouvernement de Jaroslavl. *Rev. Russe Ent. Petrograd* 16 1916 pp. 23-37.

947.—Kiritshenko, A. N. Contributions à la faune des *Hémiptères-Hétéroptères* du gouvernement de Nizhnij-Novgorod. Rev. Russe Ent. Petrograd 16 1916 pp. 77-86.

948.—Kiritshenko, A. N. Contributions à la faune des *Hémiptères-Hétéroptères* de la Crimée. V. Rev. Russe Ent. Petrograd 16 1916 pp. 87-91.

949.—Kiritshenko, A. N. *Hemiptera-Heteroptera* Faunae Caucasicae. Pars I. Mém. Mus. Caucaso Tiflis Ser. A No. 6 1918 pp. 1-177.

950.—Klapálek, F. Neue *Plecopteren*-arten aus der Familie Capniidae. Casopis Praz 17 1920 pp. 3-6.

951.—Klapálek, F. *Plécoptères* nouveaux. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 57-67; deuxième partie pp. 146-150 320-327.

952.—Klatt, B. Beiträge zur Sexualphysiologie des Schwammspinners. Biol. Centralbl. Leipzig 40 1920 pp. 539-558 3 figs. [*Lepidoptera*.]

953.—Kleine, R. Über die Stellung der Ulocerinae innerhalb der Familie der Brenthididae. Arch. Natg. Berlin Abt. A 87 Heft 6 1921 pp. 268-274 3 text-figg. [*Coleoptera*.]

954.—Kleine, R. Bestimmungstabelle der Gattung *Estenorrhinus* Lacordaire. Arch. Natg. Berlin Abt. A 87 Heft 6 1921 pp. 275-281 11 text-figg. [*Coleoptera*.]

955.—Kleine, R. Die Gattung *Cyphagogus* Parry. Arch. Natg. Berlin Abt. A 87 Heft 6 1921 pp. 282-328 29 text-figg. [*Coleoptera*.]

956.—Kleine, R. Der Stridulationsapparat der Hylobiini (*Col.*). Ent. Mitt. Berlin 10 1921 pp. 16-17 54-62-85-93 100-109 133-143 42 text-figs.

957.—Kleine, R. Ein neues Brenthidengenus aus Niederländ. Indien. Tijdschr. Ent. 's-Gravenhage 64 1921 pp. 31-35 4 text-figg. [*Coleoptera*.]

958.—Kleine, R. Haben die *Hylobius*-Arten einen Stridulationsapparat? Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 109-114 137-142 177-182 225-228 figs. [*Coleoptera*.]

959.—Kleine, R. Kritische Bemerkung über die Gattung *Trachelizus* Schoenherr. D. ent. Zs. Berlin 1921 pp. 31-32. [*Coleoptera*.]

960.—Kleine, R. Myrmekophile Brenthididen. D. ent. Zs. Berlin 1921 pp. 109-114 fig. [*Coleoptera*.]

961.—Kleine, R. Ein neues Brenthidengenus aus dem Naturhistorischen Museum zu Lübeck. D. ent. Zs. Berlin 1921 pp. 286-288 figs. [*Coleoptera*.]

962.—Kleine, R. Die Getreideblumenfliege *Hylemyia coarctata* Fall., ein Beitrag zur Kenntnis ihrer Biologie und ihrer Bedeutung für die Landwirtschaft. Zs. angew. Ent. Berlin 2 1915 pp. 360-389. [*Diptera*.]

963.—Kleine, R. *Hylemyia coarctata* Fall. Zs. angew. Ent. Berlin 3 1916 p. 179. [*Diptera*.]

964.—Kleine, R. Die Getreideblumenfliege, *Hylemyia coarctata* Fall. Zs. angew. Ent. Berlin 4 1918 pp. 16-24. [*Diptera*.]

965.—Kleine, R. *Thereva nobilitata* Fabr. (ein neuer Roggenschädling). Zs. angew. Ent. Berlin 4 1918 p. 373. [*Diptera*.]

966.—Kleine, R. Welche Aaskäfer-Imagines (Silphiden) befressen die Rübenblätter. Zs. angew. Ent. Berlin 5 1919 pp. 278-285. [*Coleoptera*.]

967.—Kleine, R. Die Winter-saateule *Agrotis segetum* Schiff. und ihre Bedeutung als landwirtschaftlicher Schädling. Zs. angew. Ent. Berlin 6 1920 pp. 247-269. [*Lepidoptera*.]

968.—Kleine, R. Sind manche *Phyllotreta*-Arten wirklich Getreideschädlinge? Zs. angew. Ent. Berlin 7 1921 pp. 48-57. [*Coleoptera*.]

969.—Kleine, R. Die Stridulationsapparat der Ipidae, ii. Ent. Blätter Berlin 17 1921 pp. 22-26. [*Coleoptera*.]

970.—Kleine, R. Das Frassbild von *Orina cacaliae* Schrank und *tristis* Fabr. Ent. Blätter Berlin 17 1921 pp. 74-81 pl. [*Coleoptera*.]

971.—Kleine, R. Brenthididenstudien. Ent. Blätter Berlin 17 1921 pp. 124-131. [*Coleoptera*.]

972.—Kleine, R. Brenthidologisches aus dem Museum Zoologicum Universitatis zu Helsingfors. *Notulae Ent. Helsingfors* 1 1921 pp. 8–12. [*Coleoptera*.]

973.—Knisch, A. Hydrophiliden aus Matto Grosso (Erster Teil). *Arch. Natg. Abt. A* 87 Heft 6 1921 pp. 1–24. [*Coleoptera*.]

974.—Knisch, A. Über die Gattung *Hydrocyclus* Sharp. *Ent. Anz. Wien* 1 1921 pp. 100–107. [*Coleoptera*.]

Knull, J. N. *vide* Champlain, A. B.

975.—Kohl, F. F. Beitrag zur Kenntnis der Gattung *Cerceris* auf Grundlage der O. Radoszkovskyschen Sammlung. *Arch. Natg. Berlin A* 81 H. 7 1915 pp. 107–125 12 figs. [*Hymenoptera*.]

976.—Koehler, A. Über die Einschlüsse der Epithelzellen des Bienen-darms und die damit in Beziehung stehenden Probleme der Verdauung. *Zs. angew. Ent. Berlin* 7 1921 pp. 68–91.

977.—Koester, W. Blomberger Käferfunde 1911–1913. *Jahresber. Prov. Ver. Wiss. Münster* 42 1914 pp. 13–16. [*Coleoptera*.]

Kohl, F. F. *vide* No. 975.

978.—Kolbe, W. Beiträge zur schlesischen Käferfauna. *Ent. Mitt. Berlin* 10 1921 pp. 75–82. [*Coleoptera*.]

979.—Kolbe, W. Beiträge zur schlesischen Käferfauna. *Jahresheft. Ver. Insektenk. Breslau* 13 1921 pp. 29–40. [*Coleoptera*.]

980.—Kolbe, W. Über tertiärzeitliche Relikte in Deutschland, besonders über *Rhizotrogus cicatricosus* Muls. und andere *Coleopterenarten*. *D. ent. Zs. Berlin* 1921 pp. 25–31.

981.—Komárek, J. Nymphy Českých jepic. *Časopis Prazě* 16 1919 pp. 60–63 4 text-figg. [*Ephemeroptera*.]

982.—Komárek, J. Nymphy Českých jepic II. *Ecdyurus lateralis* Ct. [Hitherto unknown nymphal stages of Ephemeraidae.] *Časopis Prazě* 17 1920 pp. 59–62 4 text-figg. [*Ephemeroptera*.]

983.—Komárek, J. Kalamita mnišková a polyedrická nemoc [the polyhedral disease of nun-moth caterpillars]. *Časopis Prazě* 18 1921 pp. 6–10. [*Lepidoptera*.]

984.—Komárek, J. Ephemeraeidae from Czecho-Slovak. *Časopis Prazě* 18 pp. 74–81 figs.

Komárek, J. *vide* Vimmer and Komárek.

Konsuloff, S. *vide* Schischkoff and Consuloff.

985.—Köppen, A. Die feineren Verästlungen der Tracheen nach Untersuchungen an *Dytiscus marginalis* L. *Zool. Anz. Leipzig* 52 pp. 132–139 4 figs 1921. [*Coleoptera*.]

986.—Kozhantshikov, V. Septième contribution à l'étude des Aphodiini (*Coleoptera*, Scarabaeidae). *Rev. Russe Ent. Petrograd* 16 1917 pp. 192–208.

Kraus, R. *vide* No. 1003.

987.—Krausse, A. Die Artischockenraupe (*Gortyna ochracea* Hb. var. *xanthenes* Germ.) *Arch. Natg. Berlin Abt. A* 80 Heft 8 1915 pp. 118–121 1 fig. [*Lepidoptera*.]

988.—Krausse, A. Der Frass von *Mesites curvipes* Boh. *Arch. Natg. Berlin Abt. A* 80 Heft 9 1915 pp. 67–68 1 pl. [*Coleoptera*.]

989.—Krausse, A. *Pamphagus mar-moratus* var. *elegans* m. nov. var. ex Sardinia. *Arch. Natg. Berlin Abt. A* 80 Heft 9 1915 p. 68. [*Orthoptera*.]

990.—Krausse, A. Zoologische Notizen [über Coleopteren, Thysanopteren, Orthopteren, Hymenopteren, Libellen, Lepidopteren, Reptilien und Schnecken] von Sardinien (nebst Verzeichnis bisheriger Arbeiten des Verfassers). *Arch. Natg. Berlin Abt. A* 81 Heft 2 1915 pp. 120–128.

991.—Krausse, A. Hexapodologische Notizen. *Arch. Natg. Berlin Ab. A* 81 Heft 5 pp. 160–167 figs. 1915.

992.—Krausse, A. Über ein Nest des *Lasius fuliginosus* Latr. *Arch. Natg. Ab. A* 81 Hft. 7 1915 pp. 39–41. [*Hymenoptera*.]

- 993.—Krausse, A. Beiträge zur Biologie von *Myrmeleon europaeus* M Lachl. Arch. Natg. Berlin A 81 Heft 7 1915 pp. 125–128. [*Neuroptera*.]
- 994.—Krausse, A. Die Limacodiden und ihr Frass bei Eberswalde. Arch. Natg. Berlin A 81 Heft 8 1915 pp. 1–7. [*Lepidoptera*.]
- 995.—Krausse, A. Über *Formica rufa*, *exsecta* und *fusca* (Nestmaterial und Stielchenschuppe). Arch. Natg. Berlin Abt. A 81 Heft 9 1916 pp. 153–155 1 pl. [*Hymenoptera*.]
- 996.—Krausse, A. Zur Biologie des *Scolytus rugulosus* Ratzeb. und des *Scolytus multistriatus* Marsh. Arch. Natg. Berlin Abt. A 81 Heft 9 1915 p. 156. [*Coleoptera*.]
- 997.—Krausse, A. Hexapodologische Notizen (II; 19–37). Arch. Natg. Berlin Abt. A 81 Heft 9 1916 pp. 157–166 7 text-figg.
- 998.—Krausse, A. Ueber einige neue *Coleopteren*varietäten von Sardinien. Arch. Natg. Berlin Abt. A 81 Heft 11 1916 p. 109 1 text-fig.
- 999.—Krausse, A. Hummeln von Eberswalde. Arch. Natg. Berlin Abt. A 81 Heft 11 1916 p. 110. [*Hymenoptera*.]
- 1000.—Krausse, A. *Formica rufa*-Frass. Arch. Natg. Berlin Abt. A 81 Heft 12 1916 p. 5 1 pl. [*Hymenoptera*.]
- 1001.—Krausse, A. *Formica fusca fusca*—Königin bei *Formica rufa pratensis*—Arbeiterinnen von künstlichen Nest. Biol. Centralbl. Leipzig 41 1921 pp. 523–7. [*Hymenoptera*.]
- 1002.—Krausse, A. Verpackung und Aufbewahrung umfangreicher Insektenausbeuten. Centralbl. Bakt. Jena Abt. 2 51 1920 pp. 313–15.
- 1003.—Kraus, R. Zur Frage der Bekämpfung der Heuschrecken mittels des *Coccobacillus acridiorum* d'Herelle. Centralbl. Bakt. Jena Abt. 2 54 1921 50–52. [*Orthoptera*.]
- Krausse, A. vide Wolff and Krausse.
- 1004.—Krieger, R. Über die Ichneumonidengattung *Xanthopimpla* Sauss. Arch. Natg. Berlin Abt. A 80 Heft 6 1914 pp. 1–148 Heft 7 1915 pp. 1–152 133 figs. [*Hymenoptera*.]
- 1005.—Kriesche, R. Die Gattung *Batocera* Cast. systematisch u. phylogenetisch-tiergeographisch betrachtet. Arch. Natg. Berlin Abt. A 80 Heft 11 1915 pp. 111–150 24 figs. [*Coleoptera*.]
- 1006.—Kriesche, R. Zweiter Beitrag zur Kenntnis der Tricentotomiden. D. ent. Zs. Berlin 1921 pp. 278–279. [*Coleoptera*.]
- 1007.—Kröber, O. Die palaearktischen Arten der Gattung *Physocephala* Schin. Arch. Natg. Berlin Abt. A 80 Heft 10 1915 pp. 43–77. [*Diptera*.]
- 1008.—Kröber, O. Die Gattung *Melanosoma* Rob.-Desv. Arch. Natg. Berlin Abt. A 80 Heft 10 1915 pp. 77–87. [*Diptera*.]
- 1009.—Kröber, O. Die Gattung *Dalmanina* Rob.-Desv. Arch. Natg. Berlin Abt. A 80 Heft 10 1915 pp. 87–94. [*Diptera*.]
- 1010.—Kröber, O. Die afrikanischen Arten der Gattung *Physocephala* Schin. Arch. Natg. Berlin Abt. A 80 Heft 11 1915 pp. 81–99. [*Diptera*.]
- 1011.—Kröber, O. Die nordamerikanischen Arten der Gattung *Physocephala* Schin. Arch. Natg. Berlin Abt. A 80 Heft 11 1915 pp. 99–110. [*Diptera*.]
- 1012.—Kröber, O. Der afrikanischen Arten der Gattung *Conops*. Arch. Natg. Berlin Abt. A 81 Heft 1 1915 pp. 35–68. [*Diptera*.]
- 1013.—Kröber, O. Die kleineren Gattungen der Conopiden. Arch. Natg. Berlin Abt. A 81 Heft 1 1915 pp. 68–89. [*Diptera*.]
- 1014.—Kröber, O. Die Gattung *Zodion* Latr. Arch. Natg. Berlin Abt. A 81 Heft 4 1915 pp. 84–117. [*Diptera*.]
- 1015.—Kröber, O. Die indoaustralischen und südamerikanischen *Physocephala*-Arten. Arch. Natg. Berlin Abt. A 81 Heft 4 1915 pp. 117–145. [*Diptera*.]
- 1016.—Kröber, O. Die nord- u. südamerikanischen Arten der Gattung *Conops*. Arch. Natg. Berlin Abt. A 81 Heft 5 1915 pp. 121–160. [*Diptera*.]

- 1017.—Kröber, O. Die *Myopa*-Arten der nicht-palaearktischen Regionen. Arch. Natg. Berlin A 81 Hft. 7 1915 pp. 23-39. [*Diptera.*]
- 1018.—Kröber, O. Die indo-australischen Arten der Gattung *Conops* L. Arch. Natg. Berlin A 81 Heft 7 1915 pp. 41-71. [*Diptera.*]
- 1019.—Kröber, O. Die palaearktischen *Myopa*-arten. Arch. Natg. Berlin A 81 Heft 7 1915 pp. 71-93. [*Diptera.*]
- 1020.—Kröber, O. Die Gattung *Occemyia* Rob.-Desv. Arch. Natg. Berlin A 81 Heft 7 1915 pp. 93-107. [*Diptera.*]
- 1021.—Kröber, O. Die palaearktischen Arten der Gattung *Conops* L. Arch. Natg. Berlin Abt. A 81 Heft 11 1916 pp. 35-60. [*Diptera.*]
- 1022.—Kröber, O. Die paläarktischen Arten der Gattung *Pangonia* Latr. (Versuch einer Auseinandersetzung). Arch. Natg. Berlin Abt. A 87 Heft 1 1921 pp. 1-67 20 figg. [*Diptera.*]
- 1023.—Krogerus, R. Zur Kenntnis der nordischen *Simplocaria*-Arten. Notulae Ent. Helsingfors 1 1921 pp. 12-13. [*Coleoptera.*]
- 1024.—Krogerus, R. *Coleoptera* uti döda aspar i Lojo-trakten. Notulae Ent. Helsingfors 1 1921 pp. 51-52.
- 1025.—Krogerus, R. Ett anmärkningsvärt fall av missbildning hos *Carabus hortensis* L. Notulae Ent. Helsingfors 1 1921 pp. 86-87 fig. [*Coleoptera.*]
- 1026.—Krogerus, R. För provinserna Karelia ladogensis (Kl.) och Isthmus karelicus (Lk.) nya eller annars intressanta *Coleoptera* insamlade juli 1920 och 1921. Notulae Ent. Helsingfors 1 1921 pp. 113-115.
- 1027.—Krogh, A. Studien über Tracheenrespiration. ii. Über Gasdiffusion in den Tracheen. Arch. ges. Physiol. Berlin 179 1920 pp. 95-112 5 figs. iii. Die Kombination von mechanischer Ventilation mit Gasdiffusion nach Versuchen an *Dytiscus*-larven. T.c. pp. 113-120 2 figs.
- 1028.—Krueger, E. Eine neue *Pieris*-art Kolumbiens? Die kolumbische *Pieris caesia*. Ent. Rundsch. Stuttgart 38 1921 pp. 26-27 28. [*Lepidoptera.*]
- 1029.—Krueger, E. Das Geräusch der *Ageronia*-Arten. Ent. Rundsch. Stuttgart 38 1921 pp. 35-36 37-38. [*Lepidoptera.*]
- 1030.—Krüger, P. Beobachtungen am Mehlmottenparasiten *Nemeritis canescens* Gravenhorst; zugleich ein Beitrag zur Kenntnis der äusseren Anatomie der Ichneumoniden. Zs. angew. Ent. Berlin 7 1921 pp. 58-67. [*Hymenoptera.*]
- 1031.—Kryger, J. P. Den store Myredod ved Louisehøj i Tisvilde Hegn i Foraaret 1920. [Excessive ant mortality in Denmark.] Ent. Medd. Kjöbenhavn 13 1921 pp. 289-292. [*Hymenoptera.*]
- 1032.—Kryz, F. Ein Beitrag zur Kenntnis der Unterschiedsempfindlichkeit und Fortbewegungsgeschwindigkeit der *Periplaneta* und einiger *Coleopteren*. Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 187-193.
- 1033.—Künnemann, D. Dritter Beitrag zur Käferfauna Ost Holsteins. D. ent. Zs. Berlin 1921 pp. 53-58 fig. [*Coleoptera.*]
- 1034.—Kuntzen, H. Zur Kenntnis der *Sagra*-Arten. (*Coleopt.* Chrysomelidae.) II. Teil. Arch. Natg. Berlin A 80 H. 9 1915 pp. 45-61.
- 1035.—Kuntzen, H. Kritische Bemerkungen und Beiträge zur Kenntnis der Adesmiinen des tropischen und südlichen Afrika (*Col.* Tenebrionidae). Arch. Natg. Berlin A 81 H. 7 1915 pp. 129-155.
- 1036.—Kurisaki, M. Studies on the Genus *Chilocorus* Leech. Konch. Sek. Gifu 25 1921 pp. 37-43 3 text-fig. [*Coleoptera.*]
- 1037.—Kurisaki, M. On a new variety of *Coccinella 7-punctata* L. Konch. Sek. Gifu 25 1921 pp. 89-90 1 text-fig. [*Coleoptera.*]
- 1038.—Kurisaki, M. Studies on the genus *Anatis* Mulsant. Konch. Sek. Gifu 25 1921 pp. 150-151. [*Coleoptera.*]
- 1039.—Kusnezov, N. J. Contributions to the morphology of the genital apparatus in *Lepidoptera*. Some cases of gynandromorphism. Rev. Russe Ent. Petrograd 16 1917 pp. 151-191 figs. 1-19.

1040.—Kusnezov, N. J. On "taxonomic conceptions" and some attempts of their foundation on morphological data. Rev. Russe Ent. Petrograd 17 1921 pp. 53-80. [Summary in English.]

1041.—Kutter, H. *Strongylognathus huberi* Tor. r. *alpinus* Wh. eine Sklavenraubende Ameise. Biol. Centralbl. Leipzig 40 1920 pp. 528-538 1 fig. [Hymenoptera.]

1042.—Labler, K. Zweiter Nachtrag zu A. Lüllwitz Verzeichnis der im Regierungsbezirk Köslin in Pommern aufgefundenen Käfer. Ent. Zeitung Stettin 82 1921 p. 188. [Coleoptera.]

1043.—Laboissière, V. Descriptions et diagnoses de Galerucini de l'Afrique occidentale, provenant des récoltes de MM. A. Chevalier et F. Fleury. Bul. Muséum Paris 1921 pp. 151-154. [Coleoptera.]

1044.—Laboissière, V. Diagnoses de Galerucini nouveaux recueillis dans l'Angola par la Mission Rohan-Chabot (1914). Bul. Muséum Paris 1921 pp. 285-290. [Coleoptera.]

1045.—Laboissière, V. Diagnoses de Galerucini nouveaux d'Afrique. Bull. soc. ent. France Paris 1921 pp. 7-9. [Coleoptera.]

1046.—Laboissière, V. Étude des Galerucini de la collection du musée du Congo belge, Première partie. Rev. zool. Afric. Bruxelles 9 1921 pp. 33-86. [Coleoptera.]

1047.—Lacreuze, Ch. Description de Lépidoptères peu connus du bassin du lac de Genève. Bul. Soc. Léop. Genève 4 1919 pp. 110-116 figs.

1048.—Lacroix, J. L. Note sur *Panorpa communis* en France. Bull. Soc. ent. France Paris 1921 pp. 16-20. [Neuroptera.]

1049.—Lacroix, J. L. Faune Néuroptérique de l'Algérie et de la Tunisie. ii. Chrysopide nouveau. Bull. soc. hist. nat. Alger 11 1920 pp. 83 & 84 1 fig. [Neuroptera.]

1050.—La Face, L. La metamorfosi dell' *Aclerda berlesii* Buffa. Boll. Lab. Portici Portici 11 1921 pp. 235-249. [Homoptera.]

1051.—Lafrance, L. Insectes nuisibles des Forêts. V. Le Scolyte du Pin. Nat. Canad. Quebec 48 1921 pp. 73-78. [Coleoptera.]

1052.—Laidlaw, F. F. A list of the Dragonflies recorded from the Indian Empire with special reference to the collection of the Indian Museum. Rec. Ind. Mus. Calcutta 22 1921 pp. 75-91 4 text-figg. [Odonata.]

1053.—Laing, F. The Cockroach: its life-history and how to deal with it. British Museum (Nat. Hist.) London Economic Series No. 12 1921 18 pp. pl. and 2 text-figs. [Orthoptera.]

1054.—Laing, F. On various genera of British Aphides. Ent. Mag. London 57 1921 pp. 118-127. [Homoptera.]

Laing, F. vide Green and Laing.

1055.—Lakon, G. Die mykologische Forschung der Pilzkrankheiten der Insekten und die angewandte Entomologie. Zs. angew. Ent. Berlin 1 1914 pp. 277-282.

1056.—Lakon, G. Die Insektenfeinde aus der Familie der Entomophthoreen. Zs. angew. Ent. Berlin 5 1919 pp. 161-216.

1057.—Lallemand, V. Description d'un nouveau Homoptère français. Bull. Soc. ent. France Paris 1921 pp. 222-224.

1058.—Lamborn, W. A. The nature and function of the caudal tufts of malayan anopheline larvae. Bull. ent. Res. London 12 1921 pp. 91-97. [Diptera.]

1059.—Landrock, K. Die Pilzmücken Mährens. iii. Teil. Zs. Mähr. LandMus. Brünn 14 1914 pp. 14-93 figs 1-39. [Diptera.]

1060.—Landrock, K. Neue mährische Arten der Pilzmückengattung *Docosia* Winn. Zs. Mähr. LandMus. Brünn 15 1916 pp. 59-66 figs. 1-13. [Diptera.]

1061.—Landrock, K. Die Pilzmücken Mährens. iv. Teil. Zs. Mähr. LandMus. Brünn 17 1919 pp. 17-75 figs. 1-11. [Diptera.]

1062.—Landry, A. Insectes nuisibles des Forêts. Le grand Nématode du Melèze (*Nematus erichsoni*). Nat. Canad. Quebec 47 1920 pp. 99-112 figs. [Hymenoptera.]

- 1063.—Lange, E. Beitrag zur Biologie von *Lycaena coridon* Poda. D. ent. Zs. Iris Berlin 33 1919 pp. 9–26. [*Lepidoptera*.]
- 1064.—Lange, E. Beitrag zur Kenntnis der Lebensgeschichte von *Larentia cambrica* Curt. D. ent. Zs. Iris Dresden 34 1920 pp. 211–216. [*Lepidoptera*.]
- 1065.—Lange, E. Richtigstellung der Angaben über die Lebensweise und Beschreibung der Raupe von *Larentia luteata* Schiff. (*Hydrelia flammeolaria* Hufn. bei Spuler und anderen). D. ent. Zs. Iris Dresden 34 1920 pp. 226–229. [*Lepidoptera*.]
- 1066.—Lange, E. Die *Lygris*- und *Larentia*-Arten im Gebiete der oberen Freiburger Mulde. D. ent. Zs. Iris Dresden 35 1921 pp. 138–179 figs. [*Lepidoptera*.]
- 1067.—Larrouse, F. Étude systématique et médicale des Phlébotomes. Travail Lab. Parasitologie Fac. Med. Paris 1921 pp. 1–106 20 text-figs. [*Diptera*.]
- 1068.—Lathrop, F. H. and Black, A. B. Studies of *Sanninoidea opalescens* Edw. in Oregon. J. econ. Ent. Geneva N.Y. 14 1921 pp. 329–336. [*Lepidoptera*.]
- 1069.—Lathy, P. I. Notes et Remarques sur les *Agrias*. Thèses Entomologiques fasc. 1 1921 24 pp. 10 plates Paris. [*Lepidoptera*.]
- 1070.—Lathy, P. I. Two new species of *Lycaenidae* from Madagascar. Ann. Nat. Hist. London 8 1921 p. 208. [*Lepidoptera*.]
- 1071.—Lea, A. M. On *Coleoptera*. Mem. Queensland Mus. Brisbane 7 1921 pp. 182–240.
- 1072.—Lea, A. M. On some Australian Chrysomelidae (*Coleoptera*) in the British Museum. Trans. ent. soc. London 1921 pp. 260–267.
- 1073.—Lea, A. M. Descriptions of new species of Australian *Coleoptera*. Part xvii. Proc. Linn. Soc. N. S. Wales Sydney 46 1921 pp. 351–369 text-fig.
- Lea, A. M. vide Tillyard, Brues and Lea.
- 1074.—Le Cerf, F. Descriptions de *Lépidoptères* nouveaux de Madagascar. Bul. Muséum Paris 1921 pp. 419–423.
- 1075.—Lehmann, H. Systematisch-Hemipterologische Studien. (*Tessera-tominae* und *Dinidorinae*.) Arch. Natg. Berlin Abt. A 87 Heft 6 1921 pp. 36–40 2 text-figg. [*Hemiptera*.]
- 1076.—Lengerken, H. V. Lebensweise und Entwicklung des Fliederschädlings *Otiorrhynchus rotundatus* Siebold. Zs. angew. Ent. Berlin 5 1919 pp. 67–83 319–321. [*Coleoptera*.]
- 1077.—Lengerken, H. V. Eine neue *Mordellistena* (*Coleopt.*) aus Columbien als Schädling an Orchideenkulturen. Zs. angew. Ent. Berlin 6 1920 pp. 409–411.
- 1078.—Lengerken, H. V. *Carabus auratus* L. und seine Larve. Arch. Natg. Berlin Abt. A 87 Heft 3 1921 pp. 31–113 75 fig. [*Coleoptera*.]
- Lengerken, H. V. vide Burkhardt and Lengerken.
- 1079.—Lenz, F. Die Eiablage von *Cylindrotoma distinctissima* (Mg.). (Nachtrag zu "Die Metamorphose der Cylindrotomiden.") Arch. Natg. Berlin Abt. A 87 Heft 7 1921 pp. 128–135 7 text-figg. [*Diptera*.]
- 1080.—Lenz, F. Chironomidenpuppen und -larven Bestimmungstabellen. D. ent. Zs. Berlin 1921 pp. 148–162. [*Diptera*.]
- 1081.—Lesne, P. Faune entomologique des Îles Canaries. v. Observations sur deux espèces de Tipulides. Bul. Muséum Paris 1921 p. 302. [*Diptera*.]
- 1082.—Lesne, P. La Faune entomologique des fosses d'aisances de la région parisienne. Les *Fannia* scatophages. Bul. Muséum Paris 1921 pp. 53–59. [*Diptera*.]
- 1083.—Lesne, P. De *Dinoderus distinctus* Lesne et les espèces affines. Bul. Soc. ent. France Paris 1921 pp. 131–134. [*Coleoptera*.]
- 1084.—Lesne, P. Un Lycide nouveau de la faune française. Bull. Soc. ent. France Paris 1921 pp. 180–182. [*Coleoptera*.]
- 1085.—Lesne, P. Les espèces typiques de *Trogoxylon*. Position systématique de ce genre. Bull. Soc. ent. France Paris 1921 pp. 228–231. [*Coleoptera*.]

- 1086.—Lessard, E. Insectes nuisibles des Forêts. La Vanesse de l'Orme (*Vanessa antiopa* L.). Nat. Canad. Quebec 47 1921 pp. 169-174. [*Lepidoptera*.]
- 1087.—Lestage, J. A. Une Perlide nouvelle du Congo française. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 151-153. [*Plecoptera*.]
- 1088.—Lestage, J. A. Les Ephémères indo-chinoises. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 211-222. [*Ephemeroptera*.]
- 1089.—Lestage, J. A. Notes Trichoptérologiques. *Lithax niger* Hag., *Trichoptère* nouveau pour la faune Belge. Bull. ent. soc. Belge Bruxelles 3 1921 p. 23.
- 1090.—Lestage, J. A. Le Dr. Ernest Rousseau. Bull. ent. soc. Belge Bruxelles 3 1921 pp. 35-41 1 plate.
- 1091.—Lestage, J. A. Notes Trichoptérologiques, iv. *Trichoptères* recueillis en Belgique par le Dr. Rousseau. Bull. ent. soc. Belge Bruxelles 3 1921 pp. 42-44.
- 1092.—Lestage, J. A. Les larves des *Phryganea* vraies de Belgique (*Trichoptères*). Bull. soc. ent. Belge Bruxelles 3 1921 pp. 60-63 figs.
- 1093.—Leussler, R. A. *Pamphila ottoa* Edw. and *pawnee* Dodge with description of a new form. Ent. News Philadelphia 32 1921 pp. 206 & 207. [*Lepidoptera*.]
- 1094.—Light, S. F. Notes on Philippine Termites, I. Philippine J. Sci. Manila 18 1921 pp. 243-257. [*Isoptera*.]
- 1095.—Light, S. F. Notes on Philippine Termites, II. Philippine J. Sci. Manila 19 1921 pp. 23-63 6 pls. and 3 text-figg. [*Isoptera*.]
- 1096.—Liljeblad, E. Notes on the Mordellidae of the United States, with descriptions of new species. Canad. Entom. Guelph 53 1921 pp. 181-186. [*Coleoptera*.]
- 1097.—Lindberg, H. *Hemiptera Heteroptera* på hojo ås. Notulae ent. Helsingfors 1 1921 pp. 19-20. (N-17041 j) q
- 1098.—Lindberg, H. Über *Heteropteren*, gesammelt von Y. Wuorentaus im Gouvernement Jenisejsk. Notulae ent. Helsingfors 1 1921 pp. 46-51.
- 1099.—Lindberg, H. Nya fyndorter för sällsynta stinkflyn. Notulae Ent. Helsingfors 1 1921 pp. 116-117 [*Hemiptera*.]
- 1100.—Lindemans, J. *Gasteruption pedemontanum* Tourn., faun. nov. spec. Ent. Ber. Helder 5 1921 pp. 297-298. [*Hymenoptera*.]
- Lindemans, J. vide Jurriaanse and Lindemans.
- 1101.—Lindsey, A. W. Some Iowa records of *Lepidoptera*. Proc. Iowa Acad. Sci. Des Moines 27 1920 pp. 319-335.
- Lindsey, A. W. vide Barnes and Lindsey.
- 1102.—Lingonblad, B. För Finlands fauna nya *Lepidoptera*. Notulae ent. Helsingfors 1 1921 pp. 52-53.
- 1103.—Lingonblad, B. Några iakttagelser rörande våra *Nonagriidae* arter. Notulae Ent. Helsingfors 1 1921 pp. 89-91. [*Lepidoptera*.]
- 1104.—Linnaniemi, W. M. and Hukkinen, Y. Zur biology und verbreitung der *Dasychira selenitica* Esp. Acta. soc. fauna fl. Fenn. Helsingfors 48 1921 No. 7 27 pp. 11 figs. [*Lepidoptera*.]
- 1105.—Lizer, C. Primer essayo bibliografico de entomología argentina. Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919 pp. 351-380. [*General*.]
- 1106.—Lizer, C. Una nueva subespecie de *Ceroplastes* (*Coccidae*) de la Republica Argentina (*Ceroplastes grandis* Hemp. sub. sp. *hempeli* nov.). Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919 pp. 381-382 2 figs. [*Homoptera*.]
- 1107.—Lizer, C. Sobre una nueva Hemipteroecidia Argentina. Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919 pp. 383-388 6 figs. [*Hemiptera*.]
- 1108.—Lloyd, J. T. The biology of North American caddis-fly larvae. Bull. Lloyd Libr. Bot. Pharm. Mater. Med. Cincinnati No. 21 pp. 1921 1-124 figs. 1-197. [*Trichoptera*.]

1110.—Lloyd, L. Notes on a colour tropism of *Asterochiton* (*Aleurodes*) *vaporariorum* Westwood. Bull. ent. Res. London 12 1921 pp. 355–359. [*Homoptera*.]

Loag, J. vide Bücher and Loag.

1111.—Lockhead, W. Interrelations in nature. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 53–60.

1112.—Löchner, L. Untersuchungen über den sog. Totstellreflex der Arthropoden. ii. Mitteilung. iii. Über Tenthrediniden-Reflexe. Arch. ges. Physiol. Berlin 180 1920 pp. 250–259 1 plate. [*Hymenoptera*.]

1113.—Lokay, E. Noví brouci pro Českou faunu. Časopis Praze 16 1919 pp. 18–19. [*Coleoptera*.]

1114.—Lokay, E. Nové formy brouků z Čech. Časopis Praze [Prague] 16 1919 p. 20. [*Coleoptera*.]

1115.—Lokay, E. Nové Staphylinidy Palaearktické. Časopis Praze 16 1919 pp. 21–25. [*Coleoptera*.]

1116.—Lokay, E. *Neuraphes talparum* n. sp. nový brouk z Čech. Časopis Praze 17 1920 pp. 1–3. [*Coleoptera*.]

1117.—Lokay, E. New Palaearctic Staphylinidae. Časopis Praze 18 1921 pp. 71–74. [*Coleoptera*.]

1118.—Loos, K. Der Kampf gegen Maikäfer und Engerling mit besonderer Berücksichtigung der Vogelwelt. Zs. angew. Ent. Berlin 4 1918 pp. 1–15. [*Coleoptera*.]

Lubsen, C. H. vide Saltet and Lubsen.

1119.—Lucas, W. J. Notes on British *Orthoptera*, 1920. Entomologist London 54 1921 pp. 94–97.

1120.—Lucas, W. J. Notes on British *Neuroptera* in 1920. Entomologist London 54 1921 pp. 212 & 213.

1121.—Lundblad, O. Einar Sellman. Ent. Tidskr. Uppsala 41 1921 pp. 141–143 photo.

1122.—Lundblad, O. Zur Kenntnis der jungen Larven einiger Wasser lebenden Rhynchoten. Ent. Tidskr. Uppsala 42 1921 pp. 53–59 2 text-figs; pp. 93–106 pl. i. [*Hemiptera*.]

1123.—Lundblad, O. *Mezira tremulae* (Germar) och dess förekomst i Sverige. Fauna och Flora Uppsala 16 1921 pp. 105–114. [*Hemiptera*.]

1124.—Lundström, C. *Diptera-Nematocera* aus den arctischen Gegenden Sibiriens. [Résultats scientifiques de l'expédition polaire russe en 1900–1903, sous la direction du Baron E. Toll.] Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918 pp. 1–33 pls. i & ii.

1125.—Lüstner, G. Über die bisher in den preussischen Weinbaugebieten angestellten wissenschaftlichen und praktischen Versuche zur Bekämpfung des Heu- und Sauerwurmes. Centralbl. Bakt. Jena Abt. 2 50 1920 pp. 88–175. [*Lepidoptera*.]

1126.—Lutshnik, V. Notice sur quelques *Pogonini* de la faune de la Russie (*Coleoptera*, Carabidae). Rev. Russe Ent. Petrograd 16 1916 pp. 75–76.

1127.—Lutshnik, V. *Analecta synonymica de quibusdam Platysmatinis* (*Coleoptera*, Carabidae). II. Rev. Russe Ent. Petrograd 16 1916 p. 92.

1128.—Lutshnik, V. Two new forms of the genus *Platysma* (Bon.) Tshitsh. (*Coleoptera*, Carabidae). Rev. Russe Ent. Petrograd 16 1916 pp. 93–94.

1129.—Lutshnik, V. On some Carabidae collected by Mr. A. I. Alexandrov in the neighbourhood of Khandaokhedzy (Manchuria) (*Coleoptera*, Carabidae). Rev. Russe Ent. Petrograd 16 1916 pp. 95–96.

1130.—Lutshnik, V. Notice sur deux espèces de la sous-famille *Pamphilinae* des environs de Kiev. Rev. Russe Ent. Petrograd 16 1917 pp. 410–411. [*Hymenoptera*.]

1131.—Lutshnik, V. On the *Bothriopterus laevicollis* Chaud. Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 1–2. [*Coleoptera*.]

1132.—Lutshnik, V. Review of the Russian species of the genus *Anisodactylus* Dej. Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 3–5. [*Coleoptera*.]

- 1133.—Lutshnik, V. On the Russian species of the subgenus *Harpalophonus* Ganglb. Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 7-10. [Coleoptera.]
- 1134.—Lutshnik, V. A preliminary review of the Russian species of the genus *Harpalus* subgenus *Artabas* Goeze. Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 p. 11. [Coleoptera.]
- 1135.—Lutshnik, V. On the interesting species of the family Carabidae of the Ciscaucasian fauna (Coleoptera). Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 13-15.
- 1136.—Lutshnik, V. De duabus novis speciebus generis *Nebria* Latr. (Coleoptera, Carabidae). Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 17-18.
- 1137.—Lutshnik, V. Descriptions of two new species of the genus *Dyschirius* Bon. (Coleoptera, Carabidae). Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 21-22.
- 1138.—Lutshnik, V. On the Meloidae of the government of Stavropol. Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 31-34. [Coleoptera.]
- 1139.—Lutshnik, V. Synonymical notes on the Carabidae (Coleoptera). Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 19-20.
- 1140.—Lyle, G. T. On three new species of Indian Braconidae. Bull. ent. Res. London 12 1921 pp. 129-132. [Hymenoptera.]
- 1141.—Lyle, G. T. Contributions to our knowledge of the British Braconidae (continuation). Entomologist London 54 1921 pp. 6-8. [Hymenoptera.]
- 1142.—Maas, Otto. Bemerkungen zur Einführung der Seidenzucht in Deutschland nach eigenen Erfahrungen über die Biologie des Seidenspinners. Zs. angew. Ent. Berlin 3 1916 pp. 180-194.
- 1143.—MacDougall, R. S. The Ox Warble or Ox Bot Flies. Trans. Highl. Soc. Scot. Edinburgh (5) 31 1919 pp. 94-121 14 figs.
- 1144.—MacDougall, R. S. Insect Pests in 1918. Trans. Highl. Soc. Scot. Edinburgh (5) 31 1919 pp. 152-188 52 figs.
- 1145.—MacDougall, R. S. Insect and arachnid Pests of 1919. Trans. Highl. Soc. Scot. Edinburgh (5) 32 1920 pp. 152-192 50 figs.
- 1146.—MacDowell, E. C. Bristle inheritance in *Drosophila*, iii, Correlation. J. Exp. Zool. Philadelphia 30 1920 pp. 419-460 8 text-figs. [Diptera.]
- 1147.—MacGillivray, A. D. The Coccidae. Tables for the identification of the subfamilies and some of the more important genera and species together with discussions of their anatomy and life history. Urbana Illinois 1921 pp. i-vi 1-502. [Hemiptera.]
- 1148.—MacGillivray, A. D. New species of Emphytinae and Selandriinae —Hymenoptera. Psyche Boston Mass. 28 1921 pp. 31-35.
- 1149.—MacGillivray, A. D. New species of Nematinae (Hymenoptera). J. New York ent. Soc. 29 1 1921 pp. 27-35. [Hymenoptera.]
- 1150.—MacGillivray, A. D. New species of Cladiinae. Ent. News Philad. 32 1921 pp. 48-50. [Hymenoptera.]
- 1151.—MacGregor, M. E. The influence of drought upon mosquito life in Surrey. Bull. ent. Res. London 12 1921 pp. 205-209. [Diptera.]
- 1152.—Macnamara, C. A new species of *Friesia*. Canad. Entom. Guelph 53 1921 pp. 126-129. [Collem-bola.]
- 1153.—Mader, L. Neue Coleopteren aus Albanien. Wien. ent. Zeit. 38 1921 p. 181.
- 1154.—Maheux, G. Report on injurious insects in Quebec district for 1920. Ann. Rep. ent. Soc. Ont. Toronto 51 1921 pp. 70-72.
- 1155.—Maidl, F. Neue paläarktische Arten der Gattung *Mimesa* Shuck. (Hym. Sphegid.). Arch. Naturges. Berlin A 80 H. 3 1914 pp. 169-173 figs. 1-8.
- 1156.—Malaise, R. Beiträge zur Kenntnis schwedischer Blattwespen. Ent. Tidskr. Uppsala 41 1921 pp. 97-128 27 text-figs. [Hymenoptera.]

- 1157.—Malaise, R. Beiträge zur Kenntnis schwedischer Blattwespen. Ent. Tidskr. Uppsala 42 1921 pp. 1-20 figs 29-49. [*Hymenoptera*.]
- 1158.—Malloch, J. R. Some notes on *Drosophilidae* (*Diptera*). Ent. News Philadelphia 32 1921 pp. 311-312.
- 1159.—Malloch, J. R. Notes on some of van der Wulp's species of North American Anthomyiidae. Ent. News Philadelphia 32 1921 pp. 40-45. [*Diptera*.]
- 1160.—Malloch, J. R. A synopsis of the genera of the Anthomyiid subfamily Coenosiniinae. Ent. News Philadelphia 32 1921 pp. 106-107. [*Diptera*.]
- 1161.—Malloch, J. R. Two new species of the genus *Coenosia*. Ent. News Philadelphia 32 1921 p. 134. [*Diptera*.]
- 1162.—Malloch, J. R. A key to the species of the genus *Coenosia* Meigen. Ent. News 32 1921 pp. 201-205. [*Diptera*.]
- 1163.—Malloch, J. R. Exotic Muscaridae. i pp. 161-173, ii pp. 420-430, Ann. Nat. Hist. London 7, iii pp. 225-239 op. cit. 8, iv op. cit. 8 pp. 414-425. [*Diptera*.]
- 1164.—Malloch, J. R. Synopsis of the Anthomyiid genera, *Mydaea*, *Ophyra*, *Phyllogaster*, *Tetramerinx* and *Eulimnophora*. Canad. Entom. Guelph 53 1921 pp. 9-13. [*Diptera*.]
- 1165.—Malloch, J. R. A synopsis of the North American species of the genera *Melanochelia* Rondani and *Limnophora* R. D. Canad. Entom. Guelph 53 1921 pp. 61-64. [*Diptera*.]
- 1166.—Malloch, J. R. Synopsis of some North American Anthomyiinae. Canad. Entom. Guelph 53 1921 pp. 76-79. [*Diptera*.]
- 1167.—Malloch, J. R. A synopsis of the North American species of the genus *Helina* R.-D. sens. lat. Canad. Entom. Guelph 53 1921 pp. 103-109. [*Diptera*.]
- 1168.—Malloch, J. R. The North American species of the Anthomyiid genus *Hebecnema* Schnabl. Canad. Entom. Guelph 53 1921 p. 214. [*Diptera*.]
- 1169.—Malyshev, S. Sur la classification des nids des abeilles et des guêpes. Rev. Russe ent. Petrograd 17 1921 pp. 1-19. [*Hymenoptera*.]
- 1170.—Mandl, K. Beobachtungen über *Cicindela hybrida* L. und ihre Rassen in Ostasien. Kol. Rundschau Wien 9 1921 pp. 79-83. [*Coleoptera*.]
- 1171.—Mann, W. M. A new genus of Termite guest from Fiji. Psyche Boston Mass. 28 1921 pp. 54-56 fig. [*Coleoptera*.]
- 1172.—Mann, W. M. The ants of the Fiji islands. Bull. Mus. Harvard Cambridge Mass. 64 No. 5 1921 pp. 399-499. [*Hymenoptera*.]
- 1173.—Mann, W. M. Three new myrmecophilous beetles. Proc. U.S. Nat. Mus. Washington 59 No. 2387 pp. 547-552. [*Coleoptera*.]
- 1174.—Marcus, E. *Proagoderus* und *Diastellopalpus* aus Deutsch-Ostafrika. D. ent. Zs. Berlin 1921 pp. 163-180. [*Coleoptera*.]
- 1175.—Mares, A. A new species and a new variety of *Cicindela* (Col.). Ent. News Philadelphia 32 1921 p. 310.
- 1176.—Marschner, H. Alfred Melin. Jahresheft. Ver. Insektenk. Breslau 13 1921 p. 23.
- 1177.—Marschner, H. *Colias palaeno* L. eine synoptische Behandlung seiner Formen. D. ent. Zs. Berlin 1921 pp. 1-24. [*Lepidoptera*.]
- 1178.—Marshall, G. A. K. On twelve new species of Curculionidae from South Africa. Ann. Nat. Hist. London 8 1921 pp. 145-160. [*Coleoptera*.]
- 1179.—Marshall, G. A. K. On new species of Curculionidae attacking forest trees in India. Bull. ent. Res. London 12 1921 pp. 165-180. [*Coleoptera*.]
- 1180.—Marshall, G. A. K. On the Curculionidae of the Samoan islands. Proc. Hawai. ent. Soc. Honolulu 4 1921 pp. 585-600. [*Coleoptera*.]
- 1181.—Martini, E. Darf der Zoologie sich nach den Nomenklaturregeln richten? Zool. Anz. Leipzig 52 1921 pp. 200-211.

- 1182.**—**Martini, E.** Bemerkungen zu Fritz Eckstein "Die einheimischen Stechmücken." Centralbl. Bakt. Jena Ab. I **86** 1921 pp. 248–256 figs.
- 1183.**—**Martin, L.** M. C. Piepers. D. ent. Zs. Iris Dresden **33** 1919 pp. 134–135.
- 1184.**—**Martin, L.** Die Tagfalter der Insel Celebes (continuation). D. ent. Zs. Iris Dresden **33** 1919 pp. 48–98 **34** 1920 pp. 181–210. [*Lepidoptera*.]
- 1185.**—**Martin, L.** Die Tagfalterfauna des Gefangenlagers Matsuyama auf der japanischen Südsinsel Shikoku. D. ent. Zs. Iris Dresden **35** 1921 pp. 6–21. [*Lepidoptera*.]
- 1186.**—**Martini, E.** Zur Kenntnis des Verhaltens der Läuse gegenüber Wärme. Zs. angew. Ent. Berlin **4** 1918 pp. 34–70. [*Anoplura*.]
- 1187.**—**Martini, E.** Die biologische Malariaabekämpfung in Mazedonien. Zs. angew. Ent. Berlin **7** 1921 pp. 225–286.
- 1188.**—**Martin, René.** Travaux scientifiques de l'Armée d'Orient (1916–1918). Odonates. Bul. Muséum Paris **1921** pp. 225–226. [*Paraneuroptera*.]
- 1189.**—**Martin, R.** Descriptions d'espèces nouvelles d'Odonates. Ann. Soc. ent. France Paris **90** 1921 pp. 94–96. [*Paraneuroptera*.]
- 1190.**—**Marumo, N.** Description of four new species of *Lepidoptera* Heterocera from Japan. J. Coll. Agric. Tokyo **6** 1920 pp. 261–264 pl. 20.
- 1191.**—**Marumo, N.** A Revision of the Japanese Pyralidae. Part I (Subfamily Epipaschiinae. J. Coll. Agric. Tokyo **6** 1920 pp. 265–272 pl. 21. [*Lepidoptera*.]
- 1192.**—**Marumo, N.** A Revision of the Notodontidae of Japan, Corea and Formosa, with descriptions of 5 new genera and 5 new species. J. Coll. Agric. Tokyo **6** 1920 pp. 273–359 pls. 22–39 43 text-figs. [*Lepidoptera*.]
- 1193.**—**Massé, A.** Insectes nuisibles des forêts. iii. Le Charançon des pins, *Pissodes strobi*. Nat. Canad. Quebec **47** 1920–21 pp. 218–224. [*Coleoptera*.]
- 1194.**—**Massar, F. W.** Verminal, ein neues Ungeziefermittel. Centrabl. Bakt. Jena Abt. I **84** 1920 pp. 148–152.
- 1195.**—**Massini, P. C.** Método biológico contra las plagas, aplicado al bicho de canasto (*Oeceticus platensis*). Prim. Reun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires **1919** pp. 619–627 7 figs. [*Lepidoptera*.]
- 1196.**—**Massini, P. C.** Destrucción de la langosta, lucha biológica. Prim. Reun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires **1919** pp. 628–638 1 pl. [*Orthoptera*.]
- 1197.**—**Maulik, S.** Notes on Cryptosoma beetles. Rec. Ind. Mus. Calcutta **22** 1921 pp. 23–24. [*Coleoptera*.]
- 1198.**—**Maulik, S.** New Indian Drilid Beetles. Proc. Zool. Soc. London **1921** pp. 579–586 figs. 1–5.
- 1199.**—**Maulik, S.** A new Hispid beetle injurious to Nipa palm. Ann. Nat. Hist. London **7** 1921 p. 451. [*Coleoptera*.]
- 1200.**—**Mavor, J. W.** On the elimination of the X-chromosome from the egg of *Drosophila melanogaster* by X-rays. Proc. Soc. Exp. Biol. Med. New York **18** 1921 pp. 301–2 [*Diptera*.]
- 1201.**—**McAtee, W. L.** Membracidae of the vicinity of Washington, D.C. Proc. Biol. Soc. Washington **34** 1921 pp. 123–134. [*Hemiptera*.]
- 1202.**—**McAtee, W. L.** Description of a new genus of Nemocera. Proc. ent. Soc. Washington **23** 1921 p. 49. [*Diptera*.]
- 1203.**—**McAtee, W. L.** District of Columbia *Diptera*; Scatopsidae. Proc. ent. Soc. Washington **23** 1921 pp. 120–124.
- 1204.**—**McAtee, W. L.** Notes on nearctic Bibionid flies. Proc. U.S. Nat. Mus. Washington **60** Art. 11 No. 2406 1921 pp. 1–27. [*Diptera*.]
- 1205.**—**McColloch, J. W.** A method for studying the Hessian fly and other insects. Ann. Ent. Soc. Amer. Columbus Ohio **14** 1921 pp. 227–230 1 text-fig.
- 1206.**—**McDunnough, J.** New British Columbia tussock moth, *Hemerocampa pseudotsugata*. Canad. Entom. Guelph **53** 1921 pp. 53–56. [*Lepidoptera*.]

- 1207.—McDunnough, J. A new *Anisota* species from Manitoba. *Canad. Entom. Guelph* 53 1921 p. 75. [*Lepidoptera*.]
- 1208.—McDunnough, J. Notes on a collection of Labrador *Lepidoptera*. *Canad. Entom. Guelph* 53 1921 pp. 81-87.
- 1209.—McDunnough, J. Two new Canadian may-flies. *Canad. Entom. Guelph* 53 1921 pp. 117-120 pl. iv. [*Ephemeroptera*.]
- 1210.—McDunnough, J. A revision of the Canadian species of the *affinis* group of the genus *Tabanus*. *Canad. Entom. Guelph* 53 1921 pp. 139-144. [*Diptera*.]
- 1211.—McDunnough, J. Two new Canadian Crambid moths. *Canad. Entom. Guelph* 53 1921 p. 160. [*Lepidoptera*.]
- 1212.—McDunnough, J. Note on the generic position of two Canadian *Arctiids*, with description of new species. *Canad. Entom. Guelph* 53 1921 pp. 167-168. [*Lepidoptera*.]
- 1213.—McDunnough, J. The Canadian species of the genus *Anomogyna*. *Canad. Entom. Guelph* 53 1921 pp. 176-180. [*Lepidoptera*.]
- 1214.—M'Gowan, B. A List of the *Coleoptera* of the Solway District, Part III. *Trans. Dumfries Nat. Hist. Soc.* (3) 7 1921 pp. 62-66.
- 1215.—McIndoo, N. E. The olfactory sense of *Orthoptera*. *J. Comp. Neur. Philadelphia* 31 1920 pp. 405-427 92 figs.
- 1216.—Meijere, J. C. H. de. Studien über palaearktische, vorwiegend holländische, Limnobiiden, insbesondere über ihre Kopulationsorgane. *Tijdschr. Ent. 's-Gravenhage* 64 1921 pp. 54-118 8 pls. [*Diptera*.]
- 1217.—Melichar, L. Eine neue Art der Gattung *Abidama* (Cercop.). *Wien, ent. Zeit.* 38 1921 p. 100. [*Hemiptera*.]
- 1218.—Mellor, J. E. M. Notes on Four Sudan Solitary Wasps. *Sudan Notes & Rec. Khartoum* 4 1921 pp. 87-105 11 figs. [*Hymenoptera*.]
- 1219.—Méquignon, A. Description d'un *Trechus* nouveau de France. *Bull. Soc. ent. France Paris* 1921 pp. 93-95. [*Coleoptera*.]
- 1220.—Méquignon, A. Diagnoses de *Chelonarium* nouveaux et note synonymique. *Bull. Soc. ent. France Paris* 1921 pp. 161-162. [*Coleoptera*.]
- 1221.—Mera, A. W. Effect of the early spring of 1920 on British *Lepidoptera*. *Entomologist London* 54 1921 pp. 84-87.
- 1222.—Merwe, C. P. van der. A note on *Dasychira extorta* and its *Lepidopterous* parasite. *S. Afric. J. Sci. Johannesburg* 17 1921 pp. 192-193. [*Lepidoptera*.]
- 1223.—Metcalf, C. L. The genitalia of the male *Syrphidae*: their morphology, with especial reference to its taxonomic significance. *Ann. Ent. Soc. Amer. Columbus Ohio* 14 1921 pp. 169-214 11 pls. [*Diptera*.]
- 1224.—Metcalf, Z. P. *Homoptero-*logical gleanings, No. 1. *Ent. News Philadelphia* 32 1921 pp. 237-238.
- Metcalf, Z. P. *vide* Wells and Metcalf.
- 1225.—Metz, C. W. and Nonidez, J. F. Spermatogenesis in the fly *Asilus sericeus*. *J. Exp. Zool. Philadelphia* 32 1921 pp. 165-183 2 plates. [*Diptera*.]
- 1226.—Meunier, F. Über einige fossile Insekten aus den Braunkohlenschichten (Aquitaniens) von Rott (Siebengebirge). *Zs. D. Geol. Ges. Berlin* 67 1915 pp. 205-217 5 plates 6 text-figs.; pp. 219-230 2 plates 8 text-figs.
- 1227.—Meunier, F. Über einige Proctotrypidae (Bethylinae, Ceraphroninae und Scelioninae) aus dem subfossilen und dem rezenten Kopal von Zanzibar und von Madagaskar. *Zs. D. Geol. Ges. Berlin* 68 1916 pp. 391-395 1 plate. [*Hymenoptera*.]
- 1228.—Meunier, F. Beitrag zur Monographie der Mycetophiliden und Tipuliden des Bernsteins. *Zs. D. Geol. Ges. Berlin* 68 1916 pp. 477-493 36 text-figs. [*Diptera*.]
- 1229.—Meyer, R. Zur Kenntnis des *Oxybelus monachus* Gerst. (*Hym.*). *Ent. Mitt. Berlin* 10 1921 pp. 48-53.

1230.—Meyer, R. *Apidae—Nomadinae* I. Gattung *Crocisa* Jur. Arch. Natg. Berlin Abt. A 87 Heft 1 1921 pp. 67-178. [*Hymenoptera*.]

1231.—Meyer, R. Die Pollensapparate der bauchsammelnden Bienen (*Gastrilegidae*). Jena. Zs. Natw. 57 (N.S. 50) 1921 pp. 229-268 3 pls. 17 text-figs. [*Hymenoptera*.]

1232.—Meyrick, E. Descriptions of South African *Micro-Lepidoptera*. Ann. Transvaal Mus. Pretoria 8 1921 pp. 49-148.

1233.—Meyrick, E. The North American species of *Orneodes*. Entomologist London 54 1921 pp. 274-276. [*Lepidoptera*.]

1234.—Meyrick, E. Notes and descriptions of New Zealand *Lepidoptera*. Tr. New Zealand Inst. Wellington 53 1921 pp. 334-336.

1235.—Middleton, W. Some notes on the terminal abdominal structures of sawflies. Proc. ent. Soc. Washington 23 1921 pp. 139-144. [*Hymenoptera*.]

1236.—Middleton, W. Some suggested homologies between larvae and adults in sawflies. Proc. ent. Soc. Washington 23 1921 pp. 173-192 pls. xiv & xv. [*Hymenoptera*.]

1237.—Miles, H. W. Observations on the insects of grasses and their relation to cultivated crops. Ann. appl. Biol. Cambridge 8 1921 pp. 170-184.

1238.—Miller, D. Material for a monograph on the *Diptera* fauna of New Zealand. Part ii. Family Syrphidae. Tr. New Zealand Inst. Wellington 53 1921 pp. 289-333 pls. xlvii-lit.

1239.—Minnich, D. E. An experimental study of the tarsal chemoreceptors of two Nymphalid butterflies. J. Exp. Zool. Philadelphia 33 1921 pp. 173-203 5 figs. [*Lepidoptera*.]

1240.—Minozzi, C. Nota sul una quarta specie del genere *Sphaeridium* F. (*Coleop. Hydrophilidae*). Bull. Soc. ent. Ital. Firenze 51 1921 pp. 53-57 fig.

1241.—Minozzi, C. Una nuova specie del genere *Apocephalus* Coquil.

(*Diptera-Phoridae*) parasita del *Crematogaster scutellaris* Oliv. Bull. Soc. ent. Ital. Firenze 51, 1921 pp. 70-77 figs. 1-6.

1242.—Mitchener, A. V. The Manitoba Grasshopper Campaign of 1920. Ann. Rep. ent. Soc. Ont. Toronto 51 1921 pp. 16-19. [*Orthoptera*.]

1243.—Mokrzecki, S. A. *Agrilus foveicollis* Mars. as a cause of the decay of the culture of roses in Bulgaria. Bull. ent. Res. London 12 1921 pp. 353 & 354. [*Coleoptera*.]

1244.—Molz, E. Zur Biologie der Getreideblumenfliege (*Hylemyia coarctata* Fall.). Zs. angew. Ent. Berlin 4 1918 pp. 325 & 326. [*Diptera*.]

1245.—Molz, E. Weitere Beiträge zur Kenntnis der Biologie der Gartenhaarmücke (*Bibio hortulanus* L.). Zs. angew. Ent. Berlin 7 1921 pp. 92-96. [*Diptera*.]

Molz, E. *vide* Müller and Molz.

1246.—Montet, G. *Hyménoptères nouveaux* du genre *Pepsis* Latr. de la collection du Muséum d'Histoire naturelle de Genève. Rev. Suisse Zool. Genève 28 1921 pp. 205-219 pl. iv.

1247.—Morice, F. D. Annotated lists of Aculeate *Hymenoptera* (except Heterogyna) and Chrysidids recently collected in Mesopotamia and North-West Persia. J. Bombay Nat. Hist. Soc. 27 1921 pp. 816-828 figs. 1-4; 28 1921 pp. 192-203 figs.

1248.—Moritz, Z. Notes sur la biologie d'*Euproctis chrysorrhoea* L. Acta Instituti Agronomici Stauropolitani [Stavropol] 1 1921 pp. 23-30. [*Lepidoptera*.]

1249.—Morley, C. British Ichneumonids, additions and confirmations. Ent. Mag. London 57 1921 pp. 53-57. [*Hymenoptera*.]

1250.—Morse, A. P. *Sympetrum corruptum* in Massachusetts. Psyche Boston Mass. 28 1921 p. 7. [*Paraneuroptera*.]

1251.—Morse, A. P. *Monecphora bicincta* (Say) in New England. Psyche Boston Mass 28 1921 pp. 27 & 28. [*Homoptera*.]

- 1252.—**Morris, F. J. A.** Reports on the insects of the year. Division No. 4, Peterborough. Ann. Rep. Ent. Soc. Ont. Toronto **51** 1921 pp. 13 & 14.
- 1253.—**Morris, H. M.** The larval and pupal stages of the Bibionidae. Bull. ent. Res. London **12** 1921 pp. 221–232. [*Diptera*.]
- 1254.—**Morrison, H.** Some non-diaspine Coccidae from the Malay peninsula, with descriptions of apparently new species. Philippine J. Sci. Manila **18** 1921 pp. 637–676 1 plate 13 figs. [*Homoptera*.]
- 1255.—**Morstatt, H.** Über einige Ergebnisse der Termitenforschung. Biol. Centralbl. Leipzig **40** 1920 pp. 415–427. [*Isoptera*.]
- 1256.—**Morstatt, H.** Die Ausbildung für angewandte Entomologie in Indien. Zs. angew. Ent. Berlin **1** 1914 pp. 266–271.
- 1257.—**Morstatt, H.** Die Rolle der tierischen Parasiten und Krankheitsüberträger im ostafrikanischen Feldzuge. Zs. angew. Ent. Berlin **7** 1921 pp. 287–295.
- 1258.—**Morton, K. J.** *Neuroptera, Mecoptera and Odonata* from Mesopotamia and Persia. Ent. Mag. London **57** 1921 pp. 213–225 pl. ii.
- 1259.—**Morton, K. J.** A new species of may-fly, *Palingenia* (sensu lato), from Mesopotamia. Entomol. London **54** 1921 pp. 177–180 pl. ii. [*Ephemeroptera*.]
- 1260.—**Moser, J.** Neue Melonithiden-Arten der Gattungen *Lachnosteria* Hope, *Phytalus* Er. und *Listrochelus* Bleh. (Col.). D. ent. Zs. Berlin **1921** pp. 247–262.
- 1261.—**Moser, J.** Beitrag zur Kenntnis der Melonithiden (Col.) xii. Ent. Zeitung Stettin **82** 1921 pp. 48–73.
- 1262.—**Moser, J.** Neue Melonithiden von Mittel- und Süd-Amerika. Ent. Zeitung Stettin **82** 1921 pp. 133–182. [*Coleoptera*.]
- 1263.—**Moser, J.** Neue *Cetoniden*-Arten (Col.). Ent. Zeitung Stettin **82** 1921 pp. 182–189.
- 1264.—**Muir, F.** On some Delphacidae from south India. Proc. Hawai. ent. Soc. Honolulu **4** 1921 pp. 480–486. [*Homoptera*.]
- 1265.—**Muir, F.** New Hawaiian Delphacidae. Proc. Hawai. ent. Soc. Honolulu **4** 1921 pp. 507–520. [*Homoptera*.]
- 1266.—**Muir, F.** On some Samoan Fulgorids. Proc. Hawai. ent. Soc. Honolulu **4** 1921 pp. 564–584 pl. x. [*Homoptera*.]
- 1267.—**Muir, F.** A symbiotic organism in Fulgorids. Psyche Boston Mass. **28** 1921 pp. 59–60. [*Homoptera*.]
- 1268.—**Muir, F.** On some recent remarks on the phylogeny of *Homoptera*. Psyche Boston Mass. **28** 1921 pp. 116–119.
- 1269.—**Muir, F.** The male genitalia of *Merope tuber* Newm. (*Mecoptera*). Trans. ent. Soc. London **1921** pp. 231 & 232 1 plate.
- Müller, A.** vide Andres and Müller.
- 1270.—**Müller, G.** Di un nuovo *Molops* dell'Albania. Bull. Soc. ent. Ital. Firenze **51** 1921 pp. 28–30. [*Coleoptera*.]
- 1271.—**Müller, H.** Vier Wochen auf der Insel Brazza. Ent. Anz. Wien **1** 1921 pp. 4–6 17 & 18. [*Lepidoptera*.]
- 1272.—**Müller, H. C., und Molz, E.** Beobachtungen über das Auftreten der Erdraupen der Saateule (*Agrotis segetum* Schiff.) im Jahre 1917. Zs. angew. Ent. Berlin **5** 1919 pp. 43–46. [*Lepidoptera*.]
- 1273.—**Müller, H. J.** Further changes in the white-eye series of *Drosophila* and their bearing on the manner of occurrence of mutation. J. Exp. Zool. Philadelphia **31** 1920 pp. 443–473 3 figs. [*Diptera*.]
- 1274.—**Müller, J.** Ueber einige Krainer Anophthalmen. Wien. Ent. Zeit. **38** 1921 pp. 91–99. [*Coleoptera*.]
- 1275.—**Müller, J.** Ueber neue und bekannte Carabiden. Wien. Ent. Zeitung **38** 1921 pp. 133–141. [*Coleoptera*.]

- 1276.—Müller, J. Ein neuer *Ptomaphagus* aus Istrien (*Col. Silph.*). Wien. Ent. Zeit. **38** 1921 p. 180.
- 1277.—Müller, J. Zur Systematik einiger phytophager *Koleopteren*, vorwiegend aus dem julischen und dalmatinischen Faunengebiet. Kol. Rundschau Wien **9** 1921 pp. 65–87.
- 1278.—Müller, M. *Rhyphus* und *Mycetobia*, mit besonderer Berücksichtigung des larvalen Darmes. Zool. Anz. Leipzig **53** 1921 pp. 297–304 10 text-figs. [*Diptera*.]
- 1279.—Müller, M. Über seltene märkische Bienen und Wespen. Arch. Natg. Berlin Abt. A **87** Heft 2 1921 pp. 167–169. [*Hymenoptera*.]
- 1280.—Munster, T. *Strophosomus melanogrammus* Frst. *rufipes* Steph. og *capitatus* Degeer. Ent. Medd. Kjöbenhavn **13** 1921 pp. 330–335. [*Coleoptera*.]
- 1281.—Munsterhjelm, G. Om Chironomidernas äggläggning och ägggrupper. Act. Soc. Fauna et Fl. Fenn. Helsingfors **47** No. 2 1920 pp. i–viii, 1–174, pls. i–v, text-figs. 1–12. [*Diptera*.]
- 1282.—Muttkowski, R. A. Studies on the respiration of insects. i. The gases and respiratory proteins of insect blood. Ann. Ent. Soc. Amer. Columbus Ohio **14** 1921 pp. 150–156.
- 1283.—Myers, J. G. The Australian Apple Leaf-hopper (*Typhlocyba australis* Frogg.). Proc. Linn. Soc. N. S. Wales Sydney **46** 1921 pp. 473–474 4 text-figs. [*Hemiptera*.]
- 1284.—Myers, J. G. The life-history of some New Zealand insects, No. i. Tr. New Zealand Inst. Wellington **53** 1921 pp. 235–237 pl. xlv. [*Heteroptera*.]
- 1285.—Myers, J. G. A revision of the New Zealand Cicadidae, with descriptions of new species. Tr. New Zealand Inst. Wellington **53** 1921 pp. 238–250 pls. xlv & xlvii. [*Hemiptera*.]
- 1286.—Myers, J. G. Notes on the *Hemiptera* of the Kermadec islands, with an addition to the *Hemiptera* fauna of the New Zealand sub-region. Tr. New Zealand Inst. Wellington **53** 1921 pp. 256 & 257.
- Myers, J. G. vide Cunningham, G. H.
- 1287.—Nagel, W. Beitrag zur Biologie der Kleidermotte (*Tineola biselliella*) und ihrer Bekämpfung mittels Cyanwasserstoffs. Zs. angew. Ent. Berlin **7** 1921 pp. 164–171. [*Lepidoptera*.]
- 1288.—Nakayama, S. An enumeration of the Japanese Aphelininae, with descriptions of two new species. Philippine J. Sci. Manila **18** 1921 pp. 97–100 1 plate. [*Hymenoptera*.]
- 1289.—Navás, L. Algunos insectos del Brasil, 3a Serie. Rev. Mus. São Paulo **12** 1920 pp. 413–417 figs. 1 & 2. [*Paraneuroptera*, *Ephemeroptera*, *Neuroptera*.]
- 1290.—Navás, L. *Neuroptera* nova Africana, Series iv, v, vi. Mem. Acc. Nuovi Lincei Roma **33** 1915 pp. 9–39 figs. 11–28.
- 1291.—Navás, L. Insecta nova, 5, 6 and 7 series. Mem. Acc. Nuovi Lincei Roma **5** 1920 29 pp. figs. 21–30. [*Paraneuroptera*, *Plecoptera*, *Trichoptera*, *Ephemeroptera*, *Neuroptera*, *Megaloptera*, *Embioptera*, *Psocoptera*.]
- 1292.—Navás, L. Sur des *Néuroptères* nouveaux ou critiques, iii. Ann. Soc. Sci. Bruxelles **40** pp. 225–232.
- 1293.—Navás, L. Algunos insectos de Santa Fe (República Argentina). Estudios Buenos Aires **1921** pp. 49–55. [*Paraneuroptera*, *Neuroptera*.]
- 1294.—Navás, L. Insectos Sud-americanos (1a, 2a y 3a serie). An. Soc. Cient. Argent. Buenos Aires **90** 1920 pp. 33–72 figs. 1–11.
- 1295.—Navás, L. Edmundo Reitter. Bol. Soc. ent. España Zaragoza **4** 1921 pp. 44–46.
- 1296.—Navás, L. Socópteros nuevos. Bol. Soc. ent. España Zaragoza **4** 1921 pp. 90–94 3 figs. [*Psocoptera*.]
- 1297.—Navás, L. *Neuroptères* de Barbarie (Deuxième série). Bull. Soc. hist. nat. Alger **12** 1921 pp. 11–14.
- 1298.—Navás, L. Lista de *Neuropteros* cogidos en el valle de Marga-Marga por el P. Gildas Tarneec. Rev. Chil. Hist. Nat. Santiago **21** 1917 p. 38. [*Neuroptera*.]

1299.—Navás, L. *Neuroptères des Iles Juan Fernandez et de l'île de Pâques. The natural history of Juan Fernandez and Easter Island* ed. by C. Skottsberg 3 1921 pt. 1 pp. 125-128 2 figs. Uppsala.

1300.—Navás, L. *Crisòpids d'Europa (Ins. Neur.)*. Arxivs Inst. Cien. Barcelona 3 No. 2 pp. 1-98 pls. i-iii 1915. [*Neuroptera*.]

1301.—Neault, A. *Insectes nuisibles des forêts: iv. La chenille à tente d'Amérique, Malacosoma americana ou Livrée d'Amérique*. Nat. Canad. Quebec 48 1921 pp. 25-32 1 fig. [*Lepidoptera*.]

1302.—Nègre, M. et Picard, F. *Sur les mœurs et la presence en France de Laspeyresia conicolana Heyl.* Bull. Soc. ent. France Paris 1921 pp. 10-12. [*Lepidoptera*.]

1303.—Neresheimer, J. and Wagner, H. *Beiträge zur Coleopterenfauna der Mark Brandenburg*, xi. Ent. Mitt. Berlin 10 1921 pp. 3-10 3 text-figs.

1304.—Netolitzky, F. *Catalogus systematicus specierum palaearcticarum generis Bembidion Latr. (Carabidae)*. Arch. Natg. Berlin Abt. A 87 Heft 7 1921 pp. 183-229. [*Coleoptera*.]

1305.—Netolitzky, F. *Eine neue Gruppe blasenziehender Käfer aus Mitteleuropa (Paederus, Staphylinidae)*. Zs. angew. Ent. Berlin 5 1919 pp. 252-257. [*Coleoptera*.]

1306.—Neumeister. *Mitteilungen über das Auftreten der Kieferneule im Forstbezirk Dresden*. Zs. angew. Ent. Berlin 2 1915 pp. 164-167. [*Lepidoptera*.]

1307.—Newnham, A. *Curious case of protective mimicry in a caterpillar*. J. Bombay Nat. Hist. Soc. 27 1921 pp. 962-963. [*Lepidoptera*.]

1309.—Nicolay, A. S. *Corrections and additions to the Leng List of Coleoptera. Family Buprestidae No. 1*. J. New York Ent. Soc. 29 3 & 4 pp. 173-178. [*Coleoptera*.]

1310.—Nicolle, C. *L'infection par le virus du typhus exanthématique est-elle héréditaire chez le pou?* Arch. Inst. Pasteur Afrique du Nord Algiers and Tunis 1 1921 pp. 433-436.

1311.—Nielsen, E. T. *Paralyseringen hos Ammophila*. Ent. Medd. Kjöbenhavn 13 1921 pp. 323-329. [*Hymenoptera*.]

1312.—Niepelt, W. *Eine neue Heliconiusform v. Guatemala*. Int. ent. Zs. Guben 15 1921 p. 19. [*Lepidoptera*.]

1313.—Niepelt, W. *Neue exotische Rhopaloceren aus dem Bismarck-Archipel*. Int. ent. Zs. Guben 15 1921 pp. 91 & 92. [*Lepidoptera*.]

1314.—Niepelt, W. *Eine neue Pararge-Form vom Thianschan-Gebirge, Pararge eversmanni Ev. v. lugens m. n. var.* Int. ent. Zs. Guben 15 1921 p. 93. [*Lepidoptera*.]

1315.—Niepelt, W. *Ein neuer Delias*. Int. ent. Zs. Guben 15 1921 p. 120. [*Lepidoptera*.]

1316.—Niepelt, W. *Zwei neue Lepidopteren-formen aus Schlesien*. Jahresheft Ver. Insektenk. Breslau 13 1921 pp. 41-42.

Nonidez, J. F. *vide Metz and Nonidez*.

1317.—Nordström, A. *Pompilid-faunan på havsstränderna i Pärnå socken*. Notulae ent. Helsingfors 1 1921 pp. 13-14. [*Hymenoptera*.]

Nordström, Å. *vide Forsius and Nordström*.

1318.—Normand, H. *Nouveaux Coléoptères de la faune tunisienne (quatorzième note)*. Bull. Soc. ent. France Paris 1921 pp. 77-79.

1319.—Notman, H. *Some new Genera and Species of Coleoptera collected at Westfield Chautauqua Co., N.Y.* J. New York Ent. Soc. 29 pp. 145-160 1921.

1320.—Novak, P. *Tabelle der mit Onthopagus grossepunctatus Rtt. und ruficapillus Br. verwandten Arten, nebst Beschreibung einer neuen Art*. Kol. Rundschau Wien 9 1921 pp. 98-100. [*Coleoptera*.]

1321.—Nuttall, G. H. F. and Keilin, D. On the nephrocytes of *Pediculus humanus*. Parasitology Cambridge 13 1921 pp. 184–192. [*Ellipoptera*.]

1322.—Nuttall, G. H. F. Portrait plates [of deceased naturalists]. Parasitology Cambridge 13 1921 pp. 398–407 11 plates.

1323.—Obenberger, J. O původu a výskytu krasců v oblasti republiky Československé, i. Časopis Praze [Prague] 1619 19 pp. 27–40. [*Coleoptera*.]

1324.—Obenberger, J. O původu a výskytu krasců v oblasti Republiky Československé, ii. Časopis Praze 17 1921 pp. 23–35. [*Coleoptera*.]

1325.—Obenberger, J. De novis Buprestidarum regionis palaearticae speciebus I. Časopis Praze 18 1921 pp. 90–98. [*Coleoptera*.]

1326.—Oberthür, C. [and Houlbert, C.]. Études de Lépidoptérologie comparée. Fasc. 18 Rennes 1921 1e Partie pp. 1–77 pls. 1–73 + J-Zbis; 2e Partie pp. 1–252 7 pls. + pls. 438–439.

1327.—Oberthür, C. Faune Lépidoptérologique du Maroc. Et. Léop. comp. Rennes 18 1921 pt. 1 pp. 41–77 pls. 1–73 + J-Zbis.

1328.—Oberthür, C. Description de quatre espèces nouvelles de Noctuelidae. Et. Léop. comp. Rennes 18 1921 pt. 2 pp. 15–22 pls. 438–439. [*Lepidoptera*.]

1329.—Oberthür, C. Le *Chrysophanus dispar* Haworth de Hollande. Bull. Soc. ent. France Paris 1921 p. 15. [*Lepidoptera*.]

1330.—Ogloblin, D. Espèces nouvelles de la tribu Halticina de la région paléarctique (*Coleoptera*, Chrysomelidae). Rev. Russe ent. Petrograd 17 1921 pp. 20–40 figs 1–10.

1331.—Oldenberg, L. Über einige *Rhamphomyia*-Arten. Arch. Natg. Berlin Abt. A 80 Heft 9 1915 pp. 69–91. [*Diptera*.]

1332.—Oldenberg, L. Veränderlichkeit der Beinfärbung der *Atalanta* (*Clinocera*). Arch. Natg. Berlin Abt. A 80 Heft 9 1915 p. 92. [*Diptera*.]

1333.—Oldenberg, L. Berichtigung zu meiner *Drosophiliden*-arbeit. Arch. Natg. Berlin Abt. A 80 Heft 9 1915 p. 93. [*Diptera*.]

1334.—Oldenberg, L. Einige neue und alte *Hilara*-Arten (*Dipt.*). Arch. Natg. Berlin 81 1916 Abt. A Heft 9 pp. 166–172.

1335.—Ollenbach, O. C. A list of Butterflies collected in the Tavoy District, Burma. J. Bombay Nat. Hist. Soc. 27 1921 pp. 883–897 map pl.; 28 1921 pp. 123–139 pl. [*Lepidoptera*.]

1336.—Olsoufieff, G. Les Coprophages de la Caucasic. Mém. Mus. Caucase Tiflis Ser. A No. 7 1913 pp. 1–92. [*Coleoptera*.]

1337.—Olsufjev, G. V. Notices sur quelques espèces du genre *Carabus* L. Rev. Russe Ent. Petrograd 16 1917 pp. 411–412. [*Coleoptera*.]

1338.—Olsufjev, G. V. *Coléoptères* entre les rails d'un chemin de fer. Rev. Russe Ent. Petrograd 16 1917 p. 412.

1339.—Orchymont, A. d'. Fam. Hydrophilidae. Faune ent. de l'Indochine française Saigon fasc. 5 1921 pp. 3–22. [*Coleoptera*.]

1340.—Orchymont, A. d'. Palpicornia de l'Amérique du sud. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 244–255. [*Coleoptera*.]

1341.—Orchymont, A. d'. Aperçu de la nervation alaire des *Coléoptères*. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 256–278.

1342.—Ormiston, W. Notes on Ceylon Butterflies (Part II). Spolia Zeylan. xi 1919 pp. 126–188 7 pls.

Osterwald, H. vide Tanzer and Osterwald.

1343.—Osterwald, H., and Tänzer, E. Ein Jahr Anophelenbeobachtung. Centralbl. Bakt. Jena Ab. I 85 1921 pp. 42–46. [*Diptera*.]

1344.—Oudemans, J. T. Bijdrage tot de kennis der parasieten en hyperparasieten van de Gestreepte Dennenrups (*Panolis griseovariegata* Göze). Ent. Ber. Helder 5 1921 pp. 330–338. [*Lepidoptera*.]

- 1345.**—Parker, J. B. Notes on the nesting habits of *Tachytes*. Proc. ent. Soc. Washington **23** 1921 pp. 103-107. [*Hymenoptera*.]
- 1346.**—Parker, R. N. Insects living in the snow at 14,000 feet. J. Bombay Nat. Hist. Soc. **27** 1921 pp. 639-641. [*Collembola*.]
- 1347.**—Parrot, L. Sur une variété nouvelle de *Phlebotomus minutus* Rondani. Bull. Soc. hist. nat. Alger **12** 1921 pp. 37-40 1 fig. [*Diptera*.]
- 1348.**—Parrot, L. Sur l'armure génitale des Phlébotomes du groupe *minutus* Rondani et sur *Phlebotomus fallax*, nov. sp. Arch. Inst. Pasteur Afrique du Nord Algiers & Tunis **1** 1921 pp. 99-102 9 figs. [*Diptera*.]
- 1349.**—Parrot, L. Notes sur les Phlébotomes. Arch. Inst. Pasteur Afrique du Nord Algiers & Tunis **1** 1921 pp. 269-278 10 figs. [*Diptera*.]
- 1350.**—Parshley, H. M. Essay on the American species of *Aradus* (*Hemiptera*). Trans. Amer. Ent. Soc. Philadelphia **47** 1921 pp. 1-106 7 pls.
- 1351.**—Parshley, H. M. An instance of miscegenation in the Gerridae. Ann. Soc. ent. Belgique Bruxelles **61** 1921 pp. 42-44. [*Heteroptera*.]
- 1352.**—Parst. Die Fichtengespinnstblattwespe (*Lyda hypotrophica* Htg.) im Roggenburger Forst. Zs. angew. Ent. Berlin **3** 1916 pp. 75-96. [*Hymenoptera*.]
- 1353.**—Patel, P. G. Note on the life-history of *Culicoides oxystoma*, with some remarks on the early stages of *Ceratopogon*. Rep. 4th ent. meeting Pusa Calcutta 1921 pp. 272-278 pl. xlvii. [*Diptera*.]
- 1354.**—Patton, W. S. Notes on the myiasis-producing *Diptera* of man and animals. Bull. ent. Res. London **12** 1921 pp. 239-261.
- 1355.**—Pauly, Maria. Die Mundwerkzeuge der Caraboidea. Arch. Natg. Berlin Abt. A **81** Heft. 2 1915 pp. 1-102 57 figs. [*Coleoptera*.]
- 1356.**—Pelle, H. D. The Butterflies of Mesopotamia. J. Bombay Nat. Hist. Soc. **28** 1921 pp. 50-70. [*Lepidoptera*.]
- 1357.**—Pennington, M. S. Notas sobre una pequeña colección de Hemipteros Heterópteros de Río Blanco. Rev. Chil. Hist. Nat. Santiago **22** 1919 pp. 172-175. [*Hemiptera*.]
- 1358.**—Perkins, R. C. L. Two new species of bees of the genus *Sphecodes*. Ent. Mag. London **57** 1921 pp. 9-11. [*Hymenoptera*.]
- 1359.**—Perkins, R. C. L. Variation in British *Psithyrus* and remarks on *Bombus pomorum*. Ent. Mag. London **57** 1921 pp. 82-87. [*Hymenoptera*.]
- 1360.**—Perkins, R. C. L. Notes on Hawaiian Plagithmysiides and Anobiides, with descriptions of new species. Proc. Hawai. ent. Soc. Honolulu **4** 1921 pp. 493-506. [*Coleoptera*.]
- 1361.**—Peschet, R. Description d'un *Canthidrus* (*Coleoptera*-Dytiscidae) nouveau des îles philippines. Philippine J. Sci. Manila **18** 1921 pp. 693-694.
- 1362.**—Peschke, R. Die Formen von *Parn. apollo* L. der Liptauer Alpen und der Beler Kalkalpen (Hohe Tatra). Int. ent. Zs. Guben **15** 1921 pp. 21-22 35-36. [*Lepidoptera*.]
- 1363.**—Petherbridge, F. R. Observations on the life history of the wheat bulb-fly (*Leptohylemyia coarctata*). J. Agric. Sci. Cambridge **11** 1921 pp. 99-105 2 plates. [*Diptera*.]
- 1364.**—Petry, A. *Erebria epiphron* Kn. vom Altvater und Brocken. D. ent. Zs. Iris Dresden **33** pp. 122-133 1919. [*Lepidoptera*.]
- 1365.**—Peyerimhoff, P. de. Nouveaux Coléoptères du Nord-africain. Trenteseptième note: récoltes de MM. Ch. Alluaud et A. Théry dans le Maroc occidental. Bull. Soc. ent. France Paris **1921** pp. 25-27.
- 1366.**—Peyerimhoff, P. de. Nouveaux Coléoptères du Nord-africain. Trentehuitième note: Tenebrionidae. Bull. Soc. ent. France Paris **1921** pp. 62-66.
- 1367.**—Peyerimhoff, P. de. Nouveaux Coléoptères du Nord-africain. Trente-neuvième note: faune saharienne. Bull. Soc. ent. France Paris **1921** pp. 231-236. [*Coleoptera*.]

- 1368.—Peyerimhoff, P. de. Éthologie des *Brachyleptus* et notamment de *B. algiricus* Grouv. La cécidie de *Roemeria hybrida* D.C. Bull. Soc. ent. France Paris 1921 pp. 281-285. [*Coleoptera*.]
- 1369.—Pfankuch, K. Aus der Ichneumonologie (*Hym.*). Weitere Deutung Gravenhorstscher Typen. D. ent. Zs. Berlin 1921 pp. 224-246.
- 1370.—Phibbs, G. Variations in the segmental spines of the fourth stage larva of *Hypoderma bovis*. Irish Natural. Dublin 30 1921 pp. 53-57. [*Diptera*.]
- 1371.—Philpott, A. Notes and descriptions of New Zealand *Lepidoptera*. Tr. New Zealand Inst. 53 1921 pp. 337-342.
- 1372.—Pic, M. Mélanges exotico-entomologiques. Fasc. 33 Moulins 1921 pp. 1-32. [*Coleoptera*.]
- 1373.—Pic, M. Mélanges exotico-entomologiques. Fasc. 34 Moulins 1921 pp. 1-33. [*Coleoptera*.]
- 1374.—Pic, M. Coléoptères nouveaux des Collections du Muséum. Bul. Muséum Paris 1921 pp. 338-340.
- 1375.—Pic, M. Descriptions de Coléoptères Hétéromères et Malacodermes nouveaux recueillis dans l'Angola par la Mission Rohan-Chabot (1919). Bul. Muséum Paris 1921 pp. 341-343.
- 1376.—Pic, M. Coléoptères nouveaux de la famille des Hylophilides. Bul. Muséum Paris 1921 pp. 415-418.
- 1377.—Pic, M. Deux nouveaux *Crioceris* Geoffr. asiatiques. Bull. Soc. ent. France Paris 1921 pp. 136 & 137. [*Coleoptera*.]
- 1378.—Pic, M. Nouveaux Malacodermes du Maroc. Bull. Soc. Sci. Nat. Maroc 1 1921 pp. 146 & 147. [*Coleoptera*.]
- 1379.—Picard, F. Sur la biologie du *Tetrastichus rapo* Walk. Bull. Soc. ent. France Paris 1921 pp. 206-208. [*Hymenoptera*.]
- Picard, F. vide Nègre and Picard.
- 1380.—Pictet, A. Observations biologiques sur *Pieris brassicae* en 1917. Bul. Soc. Léop. Genève 4 1918 pp. 53-66. [*Lepidoptera*.]
- 1381.—Pictet, A. Les eclosions de Papillons et la pression barométrique. Bul. Soc. Léop. Genève 4 1918 pp. 67-74. [*Lepidoptera*.]
- 1382.—Pictet, A. Recherches sur l'ontogénie de *Notodonta ziczac* L. pendant trois générations dans la même année. Bul. Soc. Léop. Genève 4 1919 pp. 123-129. [*Lepidoptera*.]
- 1383.—Pictet, A. Observations biologiques sur *Porthesia similis* Fuessl. pendant quatre générations. Bul. Soc. Léop. Genève 4 1921 pp. 186-201. [*Lepidoptera*.]
- 1384.—Pictet, A. Expériences de génétique avec *Porthesia similis* et d'autres *Lépidoptères*. Bul. Soc. Léop. Genève 4 1921 pp. 202-220.
- 1385.—Pierre, C. Descriptions de deux *Tipula* nouveaux. Bull. Soc. ent. France Paris 1921 pp. 47-49. [*Diptera*.]
- 1386.—Pierre, C. Descriptions de trois *Tipula* nouveaux des Pyrénées. Bull. Soc. ent. France Paris 1921 pp. 262-265. [*Diptera*.]
- 1387.—Pierre, C. Faune entomologique des Iles Canaries. iv. *Diptères*; *Tipulidae*. Bul. Muséum Paris 1921 pp. 298-301.
- 1388.—Pigeot, P. Le parasitisme chez les insectes. Bull. Soc. Ardennes Charleville 5 1898 pp. 29-37; 6 1899 pp. 35-41.
- 1389.—Pigeot, P. Des cécidies en général. Biologie des cynipides gallicoles. Bull. Soc. Ardennes Charleville 6 1899 pp. 26-29. [*Hymenoptera*.]
- 1390.—Pigeot, P. Première note sur les Tenthredinidae. Bull. Soc. Ardennes Charleville 6 1899 pp. 71-78. [*Hymenoptera*.]
- 1391.—Pigeot, P. Description d'une espèce nouvelle d'*Andricus* (*Hym. Cynipides*). Bull. Soc. Ardennes Charleville 6 1899 p. 80.
- 1392.—Pigeot, P. Deuxième note sur les Tenthredinidae. Classification. Bull. Soc. Ardennes Charleville 7 1900 pp. 17-28. [*Hymenoptera*.]

1393.—Pigeot, P. Troisième note sur les Tenthredinidae. Contribution au catalogue des espèces Ardennaises. Bull. Soc. Ardennes Charleville 8 1901 pp. 18–27. [*Hymenoptera.*]

1394.—Pigeot, P. Cynipides galli-
coles des Ardennes. Première note.
Espèces vivant sur le Chêne. Bull.
Soc. Ardennes, Charleville 8 1901
pp. 28–33. [*Hymenoptera.*]

1395.—Pigeot, P. Cynipides galli-
coles des Ardennes. Deuxième note.
Espèces observées sur des Plantes
autres que le Chêne. Bull. Soc.
Ardennes Charleville 9 1902 pp. 8–21.
[*Hymenoptera.*]

1396.—Pigeot, P. Note sur le genre
Trypoxylon Ltr. Bull. Soc. Ardennes
Charleville 9 1902 pp. 62–65. [*Hymeno-
ptera.*]

1397.—Pigeot, P. Note sur *Andrena
nycthemera* Imh. (*Hym.* Mell.). Bull.
Soc. Ardennes 10 1903 pp. 45–47.

1398.—Pigeot, P. Cynipides galli-
coles des Ardennes. Troisième note.
Tableau synoptique des espèces vivant
sur le Chêne. Bull. Soc. Ardennes
Charleville 11 1904 pp. 13–24. [*Hymeno-
ptera.*]

1399.—Pigeot, P. A propos de la
galle d'*Andricus furunculus* Kieff.
(*Hym.* Cyn.). Bull. Soc. Ardennes
Charleville 11 1904 pp. 37–38.

1400.—Plavilstshikov, N. Notices
sur les Longicornes de la faune palé-
arctique (*Coleoptera*, *Cerambycidae*).
iii. Rev. Russe Ent. Petrograd 16
1916 pp. 18–22.

1401.—Plavilstshikov, N. Les
Longicornes du gouvernement de Pol-
tava (*Coleoptera*, *Cerambycidae*). Rev.
Russe Ent. Petrograd 16 1916 pp.
106–111.

1402.—Plavilstshikov, N. N. Notices
synonymiques sur les Longicornes
(*Coleoptera*, *Cerambycidae*). ii. Rev.
Russe Ent. Petrograd 17 1921 pp. 110–
111.

1403.—Plavilstshikov, N. N. Quae-
dam *Cerambycidarum* palaearctica-
rum species descriptae (*Coleoptera*).
Rev. Russe Ent. Petrograd 17 1921 pp.
112–123.

1404.—Pliginsky, V. Contributions
à la faune des *Coléoptères* du gouverne-
ment de la Tauride. Rev. Russe ent.
Petrograd 16 1917 pp. 346–352.

1405.—Pliginskij, V. Contributions
à la faune des *Coléoptères* des environs
de la ville Kaluga. Rev. Russe Ent.
Petrograd 16 1917 pp. 409 & 410.

1406.—Popoff, M. Die Lösung der
Phylloxerafrage durch Reformierung
der Rebenkultur. Zs. angew. Ent.
Berlin 5 1919 pp. 217–225. [*Hemiptera.*]

1407.—Popoff, M. und Joakimoff, D.
Die Bekämpfung der Reblaus durch
Umänderung der Rebenkultur. Zs.
angew. Ent. Berlin 3 1916 pp. 367–
382.

1408.—Popoff, M. und Joakimoff.
Über die Züchtung phylloxerafester
Reben. Zs. angew. Ent. Berlin 4 1918
pp. 31–33.

1409.—Poppus, B. Zwei neue
Miriden (*Hem. Het.*). Ent. Mitt. Berlin
10 1921 pp. 82–84.

1410.—Poppus, B. und Bergroth, E.
Beiträge zur Kenntnis der myrme-
coiden *Heteropteren*. Ann. Mus.
Hungar. Budapest 18 1921 pp. 31–88
Taf. i & ii.

1411.—Porritt, G. T. The Hudders-
field varieties of *Abrazas grossulariata*,
with description of a new variety.
Ent. Mag. London 57 1921 pp.
128–135. [*Lepidoptera.*]

1412.—Porter, C. E. Nueva locali-
dad de *Glyptobasis porteri*, Brèthes.
Rev. Chil. Hist. Nat. Santiago 20 1916
p. 78. [*Neuroptera.*]

1413.—Porter, C. E. Artrópodos de
Curacautín y Longimay. Rev.
Chil. Hist. Nat. Santiago 22 1919 pp.
178–181.

1414.—Porter, C. E. Los Tisan-
ópteros. Rev. Chil. Hist. Nat.
Santiago 23 1920 pp. 55–73 1 pl. 2
text-figs. [*Thysanoptera.*]

1415.—Porter, C. E. Sobre algunos
Bracónidos chilenos y descripción de
una nueva especie. Rev. Chil. Hist.
Nat. Santiago 24 1920 pp. 5–7.
[*Hymenoptera.*]

- 1416.—Porter, C. E. Cambio de nombre genérico [*Brethesia* to *Brethesiella*]. Rev. Chil. Hist. Nat. Santiago 24 1920 p. 16. [*Hymenoptera*.]
- 1417.—Porter, C. E. Sobre dos Braconidos argentinos. Rev. Chil. Hist. Nat. Santiago 24 1920 pp. 33–34. [*Hymenoptera*.]
- 1418.—Portevin, G. Note sur quelques Silphides et Liodides de la Collection Grouvelle. Bul. Muséum Paris 1921 pp. 535–538. [*Coleoptera*.]
- 1419.—Portevin, G. Révision du genre *Hyponerodes* Kraatz. Miscell. ent. Narbonne 25 1921 pp. 81–85. [*Coleoptera*.]
- 1420.—Poulton, E. B. The proportion of the female forms of *Papilio polytes* L., in Dehra Dun, United Provinces, and Bihar. Rep. 4th ent. meeting Pusa Calcutta 1921 pp. 259–269. [*Lepidoptera*.]
- 1421.—Prain, Sir D. Some relationships of economic biology. Ann. appl. Biol. Cambridge, Mass. 8 1921 pp. 66–76.
- 1422.—Prell, H. Zur Biologie der Tachinen *Parasetigena segregata* Rdi., und *Panzeria rudis* Fall. Zs. angew. Ent. Berlin 2 1915 pp. 55–148. [*Diptera*.]
- 1423.—Prell, H. Das Entstehen von Schnakenplagen. Zs. angew. Ent. Berlin 5 1919 pp. 61–66. [*Diptera*.]
- 1424.—Prell, H. *Anopheles* und die Malaria in Deutschland. Verh. Deut. Gesell. angew. Ent. Berlin 1919 pp. 134–137. [*Diptera*.]
- 1425.—Prell, H. *Anopheles* und die Malaria. Flug. 9 Deut. Gesells. angew. Ent. Berlin 1919. [*Diptera*.]
- 1426.—Priesner, H. *Haplothrips*-Studien. Treubia Buitenzorg 2 1921 pp. 1–20 7 figs. [*Thysanoptera*.]
- 1427.—Priesner, H. Neue und wenig bekannte *Thysanopteren* der neotropischen Fauna aus der Sammlung des Berliner Zoologischen Museums. D. ent. Zs. Berlin 1921 pp. 187–223 figs.
- 1428.—Priesner, H. Neue europäische *Thysanopteren*. Wein, ent. Zeit. 38 pp. 115–122.
- 1429.—Prout, Miss A. E. Notes on some Noctuidae in the Joicey collection, with descriptions of new species. Ann. Nat. Hist. London 8 1921 pp. 1–33 pls. i–vii. [*Lepidoptera*.]
- 1430.—Prout, Miss A. E. New Noctuidae [African]. Bull. Hill Mus. London 1 1921 pp. 119–137 pl. xiii. [*Lepidoptera*.]
- 1431.—Prout, L. B. Moths of Mesopotamia and N.W. Persia. Part III. Geometridae. J. Bombay Nat. Hist. Soc. 28 1921 pp. 187–191. [*Lepidoptera*.]
- 1432.—Prout, L. B. New Geometridae [African]. Bull. Hill Mus. London 1 1921 pp. 138–157 pl. xviii. [*Lepidoptera*.]
- 1433.—Puster. Maikäfer-Ökonomie und Waldwirtschaft. Zs. angew. Ent. Berlin 3 1916 pp. 197–203. [*Coleoptera*.]
- 1434.—Pylnov, E. Contributions à la faune des Acridioidea et des Locustodea de la Mongolie boréale. Rev. Russe Ent. Petrograd 16 1917 pp. 275–284 figs. 1–6. [*Orthoptera*.]
- 1435.—Rabaud, E. L'adaptation et l'instinct des Cassides. Bull. Sci. France Belgique Paris 55 1921 pp. 153–183 5 figs. [*Coleoptera*.]
- 1436.—Ragusa, E. Coleotteri nuovi o poco conosciuti della Sicilia. Bull. Soc. ent. Ital. Firenze 51 1921 pp. 31–36 85–100. [*Coleoptera*.]
- 1437.—Rambousek, F. J. Vědecké výsledky československé Armády v Rusku a Sibíři. I. část. Nový rod ruských Staphylinidů. (Résultats scientifiques de l'armée tchécoslovaque en Russie et en Sibérie. I. Un genre nouveau des Staphylinides de la Russie.) Časopis Praz 17 1920 pp. 16–21 1 text-fig. [*Coleoptera*.]
- 1438.—Rambousek, F. New Staphylinidae from Siberia, part 2. Časopis Praz 18 1921 pp. 82–87. [*Coleoptera*.]
- 1439.—Ramsden, C. T. A new *Xylophanes* from Cuba. Ent. News Philadelphia 32 1921 p. 23. [*Lepidoptera*.]
- 1440.—Rangnow, H. Biologische Betrachtungen über *Acrionicta* (Lep. Het. Noct.). Zs. wiss. Insektenbiol. Berlin 16 pp. 135–136.
- Ranninger v. 579 p. 28.

Rasetti, F. *vide* Emilio and Rasetti.

1441.—Rebel, H. Zur Kenntnis palaearktischer Talaeporiiden. D. ent. Zs. Iris Berlin **32** 1919 pp. 95–112 figs. [*Lepidoptera*.]

1442.—Reh, L. Der Kartoffelkäfer bei Stade, Juli 1914. Zs. angew. Ent. Berlin **2** 1915 pp. 213–219. [*Coleoptera*.]

1443.—Reh, L. Düngung und Insektenbefall. Zs. angew. Ent. Berlin **3** 1916 pp. 127–133.

1444.—Reh, L. Über Einfuhr-Beschränkungen als Schutz gegen die Einschleppung pflanzenschädlicher Insekten. Zs. angew. Ent. Berlin **4** 1918 pp. 189–237.

1445.—Reh, L. *Homoesoma nebulella* Hb. als Sonnenblumen-Schädling im Rumänien. Zs. angew. Ent. Berlin **5** 1919 pp. 267–277. [*Lepidoptera*.]

1446.—Rehfous, M. *Everes argiades* Pall., *polysperchon* Bgst., *myrmidon* Engramelle et *alcetas* H.C. Observations biologiques. Bul. Soc. Lép. Genève **4** 1918 pp. 42–52 figs. [*Lepidoptera*.]

1447.—Rehn, J. A. G. Descriptions of new, and critical notes upon previously known forms of North American Oedipodinae (*Orthoptera*; Acrididae). Trans. Amer. ent. soc. Philadelphia **47** 1921 pp. 171–197 2 plates.

1448.—Rehn, J. A. G. Studies in Costa Rican *Dermaptera* and *Orthoptera*. Trans. Amer. ent. soc. Philadelphia **47** 1921 pp. 307–318 1 plate.

1449.—R[ehn], J. A. G. Depositions of type material. Ent. News Philadelphia **32** 1921 pp. 180–182.

1450.—Reichardt, A. Жуки-карапузики (*Histeridae*) Петроградской губернии. [Histeridae of the Government of Petrograd.] Faunae Petropolitanae Catalogus Petrograd **2** No. 4 1921 pp. 1–45. [*Coleoptera*.]

1451.—Reichensperger, A. Symphilie, Amikal-selektion, Trophallaxis und fremddienliche Zweckmässigkeit. Biol. Centralbl. Leipzig **41** 1921 pp. 279–288. [*Hymenoptera*.]

1452.—Reinecke, W. Beitrag zur Ueberwinterung von *Pyrameis atalanta*. Int. ent. Zs. Guben **14** 1921 pp. 188–189. [*Lepidoptera*.]

1453.—Reiss, H. *Zygaena carniolica* Scop. Int. ent. Zs. Guben **15** 1921 pp. 20 & 21 38–40. [*Lepidoptera*.]

1454.—Reiss, H. Die ostpreussischen Zygaenen. Int. ent. Zs. Guben **15** 1921 pp. 117–120. [*Lepidoptera*.]

1455.—Reitter, E. Bestimmungstabelle der Trixagidae, Eucnemidae, Cerophytidae und Phylloceridae der palaearktischen Fauna. Wien, ent. Zeit. **38** 1921 pp. 65–90. [*Coleoptera*.]

1456.—Reitter, E. Bemerkungen zu den Curculioniden-Gattungen *Micro-larinus* Hochh. und *Cylindropterus* Chev. Wien, ent. Zeit. **38** 1921 p. 168. [*Coleoptera*.]

1457.—Rennie, J., White, P. B., and Harvey, E. J. Isle of Wight Disease in Hive Bees. (1) The Etiology of the Disease. Trans. R. Soc. Edinburgh **52** 1921 pp. 737–754 1 pl. [*Hymenoptera*.]

1458.—Rennie, J. Isle of Wight Disease in Hive Bees. (4) Acarine Disease: The organism associated with the Disease—*Tarsonemus woodi*, n. sp. Trans. R. Soc. Edinburgh **52** 1921 pp. 768–779 1 pl. 2 text-figs. [*Hymenoptera*.]

1459.—Reuss, A. Versuch eines ostafrikanischen Raupenkalenders. Ent. Rundschau Stuttgart **38** 1921 pp. 30–32. [*Lepidoptera*.]

1460.—Reuss, T. Neue Beiträge zur Artfrage, zur Variation und zur natürlichen Gruppierung der Dryadinae (*Lep.*). Ent. Mitt. Berlin **10** 1921 pp. 186–191 pl. i.

1461.—Reuss, T. Einige aus meiner Sammlung dem Berliner Museum überwiesene märkische Falter. Int. ent. Zs. Guben **15** 1921 pp. 4–6. [*Lepidoptera*.]

1462.—Reuss, T. The androconia (plumulae) of *Yramea (Boloria) cytheris* Drury, with comparative details new to science. Soc. Entomol. Stuttgart **36** 1921 p. 4. [*Lepidoptera*.]

1463.—Reuss, T. A supplementary note to (antea): The androconial scales of *Yramea cytheris* Drury. Soc. Entomol. Stuttgart **36** pp. 15–16 1921. [*Lepidoptera*.]

- 1464.—Reusz, T. Ueber den Gesichtssinn von *Papilio podalirius*. Ent. Rundschau Stuttgart 38 1921 p. 54. [*Lepidoptera*.]
- 1465.—Reverdin, J. L. *Erebia euryale* Esp., quelques-unes de ses variétés et aberrations. Bul. Soc. Lep. Genève 4 1918 pp. 23-34 figs. [*Lepidoptera*.]
- 1466.—Reverdin, J. L. *Erynnis comma* var. *florinda* Butler. Bul. Soc. Lep. Genève 4 1918 pp. 35-38 figs. [*Lepidoptera*.]
- 1467.—Reverdin, J. L. Aberrations de *Lépidoptères*. Bul. Soc. Léop. Genève 4 1918 pp. 39-41 figs.
- 1468.—Reverdin, J. L. Note sur *Hesperia syrichtus* Fab. Bul. Soc. Léop. Genève 4 1919 pp. 96-107 figs. [*Lepidoptera*.]
- 1469.—Reverdin, J. L. *Hesperia syrichtus* Fab. Note complémentaire. Bul. Soc. Lep. Genève 4 1921 p. 167. [*Lepidoptera*.]
- 1470.—Reverdin, J. L. *Hesperia tessellata* Scudder var. *occidentalis* Skinner. *Pyrgus montivagus* Reakirt. *Syrichtus notatus* Gay. Bul. Soc. Lep. Genève 4 1921 pp. 168-185 figs. [*Lepidoptera*.]
- 1471.—Rhumler, L. Vorschlag zu einer zweckmassigen Formeldarstellung der Biologien von Insekten. Zs. angew. Ent. Berlin 4 1918 pp. 335-346.
- Ribeiro, S. vide Dover and Ribeiro.
- 1472.—Ricardo, G. Notes on the Asilinae of the South African and Oriental regions. Ann. Nat. Hist. London 8 1921 pp. 175-192. [*Diptera*.]
- 1473.—Ricardo, G. Notes on the Tabanidae in the German Entomological Museum. Arch. Natg. Berlin Abt. A 80 Heft 8 1915 pp. 122-130. [*Diptera*.]
- 1474.—Riedel, M. P. Nematocera polyneura aus Neu-Guinea usw. des hungarischen National-Museums. Ann. Mus. Hungar. Budapest 18 1921 pp. 129-144. [*Diptera*.]
- 1475.—Riedel, M. P. Dr. L. Zürcher's *Dipteren*-Ausbeute aus Paraguay. Nematocera polyneura (Familie (N-17041 j) Q
- Tipulidae). Arch. Natg. Berlin 87 1921 Abt. A Heft 3 pp. 123-127 text-fig.
- Riel, P. vide Gautier and Riel.
- 1476.—Riley, N. D. Some undescribed *Rhopalocera* from Mesopotamia and N.W. Persia, and other notes. Ann. Nat. Hist. London 8 1921 pp. 590-600. [*Lepidoptera*.]
- 1477.—Riley, N. D. Some undescribed *Rhopalocera* in the British Museum (Nat. Hist.). Entomol. London 54 1921 pp. 180-184. [*Lepidoptera*.]
- 1478.—Riley, N. D. Notes on the *Rhopalocera* of the Dollman Collection. Trans. ent. soc. London 1921 pp. 234-259 4 pls.
- 1479.—Riley, N. D. and Godfrey, E. J. Some undescribed *Rhopalocera* from Siam. J. nat. hist. soc. Siam 4 1921 pp. 167-190 4 pls.
- 1480.—Riley, W. A. Some little emphasised guide-posts to medical entomology. Ann. Ent. Soc. Amer. Columbus Ohio 14 1921 pp. 159-168.
- 1481.—Rimsky-Korsakov, M. Observations biologiques sur les *Hyménoptères* aquatiques. Rev. Russe Ent. Petrograd 16 1917 pp. 208-225 figs. 1-3.
- 1482.—Ringdahl, O. Bidrag till kännedomen om de skånska stranddynernas insektfauna. Ent. Tidskr. Uppsala 42 1921 pp. 21-40 65-92.
- 1483.—Ris, F. Über drei Arten *Erpetogomphus* (Odonata). Arch. Natg. Berlin 82 Abt. A Hft. 3 1917 pp. 152-158 figs 1-6. [*Paraneuroptera*.]
- 1484.—Ris, F. The Odonata or Dragonflies of South Africa. Ann. S. Afric. Mus. Cape Town 18 1921 pp. 245-445 pls. v-xii text-figs 1-77. [*Paraneuroptera*.]
- 1485.—R[itchie], R. Insects and forestry—some effects of the war. Scot. Natural. Edinburgh 1921 pp. 43-47.
- 1486.—Röber, J. Ueber Mimikry und verwandte Erscheinungen bei Schmetterlingen. Ent. Mitt. Berlin 10 1921 pp. 23-30 34-40 68-74. [*Lepidoptera*.]

1487.—Röber, J. Ueber bekannte und neue Schmetterlinge. Ent. Rundsch. Stuttgart **38** 1921 pp. 4-5 7-8 11. [*Lepidoptera*.]

1488.—Roberts, A. W. R. On the life history of wireworms of the genus *Agriotes* Esch., with some notes of that of *Athous haemorrhoidalis*. Ann. appl. Biol. Cambridge **8** 1921 pp. 193-215 pl. iv. [*Coleoptera*.]

Roberts, E. vide Detlefsen and Roberts.

1489.—Roemer, M. Wichtige Fragen der Bienenzüchtung. Zs. angew. Ent. Berlin **4** 1918 pp. 267-273. [*Hymenoptera*.]

1490.—Roepke, W. Eine neue *Dodona* aus dem West-Javanischen Hochgebirge: *Dodona aponata vanleeuwenii*. Treubia Buitenzorg **2** 1921 pp. 84-88 1 pl. [*Lepidoptera*.]

1491.—Rohwer, S. A. Descriptions of new Philippine wasps of the subfamily Pseninae. Philippine J. Sci. Manila **18** 1921 pp. 309-323. [*Hymenoptera*.]

1492.—Rohwer, S. A. Some Philippine wasps of the family Chrysididae. Philippine J. Sci. Manila **18** 1921 pp. 691-692. [*Hymenoptera*.]

1493.—Rohwer, S. A. The Philippine wasps of the subfamilies Scoliinae and Elidanae. Philippine J. Sci. Manila P.I. **19** 1921 pp. 75-90. [*Hymenoptera*.]

1494.—Rohwer, S. A. Descriptions of new Chalcidoid flies from Coimbatore, South India. Ann. Nat. Hist. London **7** 1921 pp. 123-135. [*Hymenoptera*.]

1495.—Rohwer, S. A. Notes on sawflies, with descriptions of new genera and species. Proc. U.S. nat. Mus. Washington **59** No. 2361 1921 pp. 83-109. [*Hymenoptera*.]

1496.—Rohwer, S. A. Notes and descriptions of neotropical sawflies of the subfamily Perreyiinae. Proc. U.S. nat. Mus. Washington **59** No. 2366 1921 pp. 161-167. [*Hymenoptera*.]

1497.—Rohwer, S. A. Some notes on wasps of the subfamily Nyssoninae, with descriptions of new species.

Proc. U.S. nat. Mus. Washington **59** No. 2374 1921 pp. 403-413. [*Hymenoptera*.]

1498.—Rolet, A. La lutte contre les criquets ravageurs des récoltes. Rev. gén. sci. Paris **31** 1920 pp. 718-727. [*Orthoptera*.]

1499.—Roman, A. Henning Nordenström. Ent. Tidskr. Uppsala **41** 1921 pp. 139-141 photo.

1500.—Ross, E. Ueber das Vorkommen fremdländischer *Coleopteren* im mitteleuropäischen Gebiet. Int. ent. Zs. Guben **14** 1921 pp. 169-170 177-178 193-194 **15** 1921 pp. 1-2 41-46 57-58 73-74 89-90 105-106 121-122 134-136.

1501.—Ross, W. A. Notes on the control of the Rose Midge. Ann. Rep. Ent. Soc. Ont. Toronto **51** 1921 pp. 63-66. [*Diptera*.]

Ross, W. A. vide Caesar and Ross.

1502.—Roth, M. P. Curieuse anomalie dans la nervation des ailes d'un Pélopée (*Pelopaeus spirifex*, Linné). Bull. soc. hist. nat. Alger **11** 1920 p. 140. [*Hymenoptera*.]

1503.—Roth, P. Sur quelques variations de couleur d'*Ammophila nasuta*, V. Bull. soc. hist. nat. Alger **11** 1920 pp. 15-16 86-87. [*Hymenoptera*.]

1504.—Roth, P. Au sujet des victimes de *Bembex mediteranea* Handl. Bull. Soc. hist. nat. Alger **12** 1921 pp. 130-131. [*Hymenoptera*.]

1505.—Rothschild, the Lord. Captain Angus Buchanan's Air Expedition. v. On the *Lepidoptera* collected by Captain A. Buchanan in northern Nigeria and the southern Sahara in 1919-1920. Novit. Zool. Tring **28** 1921 pp. 142-170 215-229.

1506.—Rothschild, the Lord. Moths of Mesopotamia and N.W. Persia. Part I. Noctuidae, Lemoniidae and Pyralidae. J. Bombay Nat. Hist. Soc. **28** 1921 pp. 170-183. [*Lepidoptera*.]

1507.—Rothschild, N. C. *Siphonaptera* from Juan Fernandez. The natural history of Juan Fernandez and Easter Island ed. by C. Skottsberg **3** 1921 pt. 1 p. 48 Uppsala.

1508.—Roubal, J. Noví brouci Čestí. Časopis Praze 16 1919 pp. 17–18. [*Coleoptera.*]

1509.—Roubal, J. Dva Koleopterolog. Příspěvky z Příbamska. (Deux contributions coléoptérologiques des environs de Příbram.) Časopis Praze 18 1921 pp. 26–29.

1510.—Roubal, J. Šest nových druhů brouků z oblasti Palaearctické. (Sex *Coleoptera* nova palaearctica.) Časopis Praze 18 1921 pp. 29–32.

1511.—Roubal, J. Neue Patria einiger kürzlich beschriebenen Halticinen: Baňská Bystrica unter Klein-Tatra. Soc. entomol. Stuttgart 36 1921 p. 27. [*Coleoptera.*]

1512.—Roubal, J. Description d'un *Mordella* nouveau de Carniole. Bull. Soc. ent. France Paris 1921 p. 248. [*Coleoptera.*]

1513.—Roubal, J. Fünf palaearktische *Coleoptera* nova. Ent. Blätter Berlin 17 1921 pp. 135 & 136.

1514.—Roubaud, E. La fermentation du tas de fumier au service de la basse-cour dans la lutte contre les Mouches. Bul. Muséum Paris 1921 pp. 48–52. [*Diptera.*]

1515.—Roubaud, E. Les conditions de nutrition des anophèles en France (*Anopheles maculipennis*) et le rôle du bétail dans la prophylaxie du paludisme. Ann. Inst. Pasteur Paris 34 1920 pp. 181–228. [*Diptera.*]

1516.—Roubaud, E. La méthode trophique dans la lutte contre les insectes et les affections qu'ils transmettent. Rev. gén. sci. Paris 31 1920 pp. 301–313.

1517.—Rowland-Brown, H. *Colias edusa* Fab. (*croceus* Fourc.): its seasonal forms, varieties and aberrations. Entomologist London 54 1921 pp. 135–140 153–157 184–187 251–253. [*Lepidoptera.*]

Rowland-Brown vide Grey, Oliver.

1518.—Rübsaamen, E. H. Cecidomyiden-Studien, vii. D. ent. Zs. Berlin 1921 pp. 33–52 figs. [*Diptera.*]

1519.—Rudolph, H. Fall av ettårig utveckling hos *Lasiocampa quercus* L. framkallande en intressant aberration. Notulae Ent. Helsingfors 1 1921 pp. 15 & 16 figs. [*Lepidoptera.*]

(N-17041 j) q

1520.—Rühl, M. Liste neuerdings beschriebener und gezogener Parasiten und ihre Wirte vii, viii. Soc. entomol. Stuttgart 36 1921 pp. 7–8 11–12 16 43–44 48.

Ruhman, M. H. vide Treherne and Ruhman.

1521.—Ruschka, F. Zur Morphologie und Systematik des Kornkäfer-Chalcidiers *Lariophagus distinguendus* Först. Zs. angew. Ent. Berlin 7 1921 pp. 463–465. [*Hymenoptera.*]

1522.—Ruschka, F. und Fulmek, L. Verzeichnis der an der K. k. Pflanzenschutz-Station in Wien erzeugten parasitischen *Hymenopteren*. Zs. angew. Ent. Berlin 2 1915 pp. 390–412.

1523.—Rüschkamp, E. Zur Biologie der Drilidae und Micromalthidae (*Ins. Col.*). Biol. Centralbl. Leipzig 40 1920 pp. 376–389 5 figs.

1524.—Rüschkamp, P. F. Zur Biologie der Dermestidae (*Col.*). Ent. Ber. Helder 5 1921 pp. 348–351.

1525.—Rüschkamp, P. F. Wheelers Trophallaxis und Ursprung der Insektenstaaten. Biol. Centralbl. Leipzig 41 1921 pp. 481–494. [*Hymenoptera.*]

1526.—Rust, E. W. Un insecto que ataca la caña de Azúcar en Tucuman. Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919 pp. 639–640. [*Lepidoptera.*]

1527.—Sack, P. Dr. L. Zürcher's *Dipteren*-ausbeute aus Paraguay: Syrphiden. Arch. Natg. Berlin 87 1921 Abt. A Heft 3 pp. 127–149 26 text-figs.

1528.—Sack, P. Über Malaria und *Anopheles* in Deutschland. Verh. Deut. Gesell. angew. Ent. Berlin 1919 pp. 167–196. [*Diptera.*]

1529.—Sahlberg, J. *Coleoptera* Fennica nova i, ii. Notulae Ent. Helsingfors 1 1921 pp. 1–3 33–37.

1530.—Saltet, R. H. and Lubsen, C. H. Over den invloed van blauwzuur op de eieren van *Malacosoma neustria* L. Ent. Ber. Helder 5 1921 pp. 345–348. [*Lepidoptera.*]

Salvaza, R. V. de vide Dubois and Salvaza.

1531.—Šámal, J. *Nemura arctica* Ptrs. v Čechách. Časopis Praze 16 1919 pp. 63–64. [*Plecoptera.*]

1532.—Šámal, J. O některých nových a málo známých družích *Plecopter* Asijsko Australské oblasti. Časopis Praze 13 1921 pp. 14–24 14 figg.; pp. 58–71 figs.

1533.—Sampson, W. Further notes on *Platypodidae* and *Scolytidae* collected by Mr. G. E. Bryant and others. Ann. Nat. Hist. London 7 1921 pp. 25–36. [*Coleoptera*.]

Sandhouse, Grace *vide* Cockerell and Sandhouse.

1534.—Santschi, F. Quelques nouveaux Formicides africains. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 113–122. [*Hymenoptera*.]

1535.—Santschi, F. Retouches aux sous-genres de *Camponotus*. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 310–312. [*Hymenoptera*.]

1536.—Santschi, F. Formicides nouveaux de l'Afrique du nord. Bull. Soc. hist. nat. Alger 12 1921 pp. 68–77.

1537.—Sauruck, F. *Adela albicinctella* Mn. Ent. Anz. Wien 1 1921 pp. 31–33. [*Lepidoptera*.]

1538.—Schaeffer, C. New species of North American Clerid beetles of the genus *Aulicus*. Proc. U.S. nat. Mus. Washington 59 No. 2365 pp. 151–159. [*Coleoptera*.]

1539.—Schatzmayr, A. Sugli Apionini italiani. Bull. Soc. ent. Ital. Firenze 51 1921 pp. 78–84. [*Coleoptera*.]

1540.—Schauberger, E. Neue Carabiden der Ostalpen. Ent. Anz. Wien 1 1921 pp. 124–129 135–139. [*Coleoptera*.]

1541.—Schaus, W. New species of *Lepidoptera* in the United States national Museum. Proc. U.S. nat. Mus. Washington 59 No. 2372 1921 pp. 349–396.

1542.—Schaus, W. New species of Heterocera from South America (*Lepidoptera*). Insector Ins. Menstr. Washington 9 1921 pp. 52–58.

1543.—Schaus, W. New species of Heterocera from South America. Insector Ins. Menstr. Washington 9 1921 pp. 161–179. [*Lepidoptera*.]

1544.—Schawerda, K. Wer hat rote oder gelbe Falter der *Zygaena athamanthae*- und *aeacus*-Gruppe aus einer Eiablage eines schwarzen, in Kopula gefundenen Paares der *Z. ephialtes*-Gruppe oder schwarze Falter aus einer Kopula von roten oder gelben, reinrassigen Eltern gezogen? Int. ent. Zs. Guben 15 1921 pp. 77–78. [*Lepidoptera*.]

1545.—Schawerda, K. Beiträge zur *Lepidopteren*-fauna der Kroatischen Küste und Neubeschreibungen. D. ent. Zs. Iris Dresden 35 1921 pp. 111–138.

1546.—Scheidter, F. Beiträge zur Biologie und Anatomie der Fichtengespinstblattwespe, *Lyda hypertrophica* Htg (= *Cephaleia abietis* L.). Zs. angew. Ent. Berlin 3 1916 pp. 97–116. [*Hymenoptera*.]

1547.—Schirmer, K. Beiträge zur Kenntnis der Hymenopterenfauna der Provinz Brandenburg. Arch. Natg. Berlin Abt. A 81 Hft. 3 1915 pp. 152–156. [*Hymenoptera*.]

1548.—Schischkoff, G. und Konsuloff, S. Die Variabilität der Mückenart *Grabhamia dorsalis* (Meigen). Zool. Anz. Leipzig 53 1921 pp. 193–205. [*Diptera*.]

1549.—Schleip, W. Über den Einfluss des Lichtes auf die Färbung von *Dixippus* und die Frage der Erblichkeit des erworbenen Farbkleides. Zool. Anz. Leipzig 52 1921 pp. 151–160. [*Orthoptera*.]

1550.—Schmidt, C. W. Neue oder wenig bekannte afrikanische *Rhopaloceren*. D. ent. Zs. Iris Dresden 35 1921 pp. 32–51.

1551.—Schmiedeberg, O. Über Chitin und Chitinabkömmlinge des Tier- und Pflanzenreichs. Arch. exper. Path. Leipzig 87 1920 pp. 74–85. [*Coleoptera*.]

1552.—Schmiedeknecht, O. Die Ichneumonidengattung *Pimpla* F. Zs. angew. Ent. Berlin 1 1914 pp. 396–478. [*Hymenoptera*.]

1553.—Schmitz, H. Neue europäische *Apiochaeta*-Arten, iv. (Phoridae, *Dipt.*). Ent. Ber. Helder 5 1921 pp. 319–327.

- 1554.—Schmitz, H. Über die Winnertzsche Phoridensammlung in Bonn. Tijdschr. Ent. 's-Gravenhage **64** 1921 pp. 1–11. [*Diptera*.]
- 1555.—Schmitz, H. *Stethopathusa* (n. g.) Phoridarum (*Dipt.*). Bol. Soc. ent. España Zaragoza **4** 1921 pp. 95–98 fig.
- 1556.—Schmitz, H. *Aptinandria*, eine neue, in beiden Geschlechtern flügel- und schwingerlose Phoridengattung aus Afrika (Phoridae *Diptera*). Ent. Medd. Kjöbenhavn **13** 1921 pp. 318–322.
- 1557.—Schnepf, M. Zucht eines seltenen Hybriden aus der Kreuzung von *Celerio euphorbiae* ♂ × *Pergesa porcellus* ♀. Ent. Rundsch. Stuttgart **38** 1921 pp. 17 & 18 2 figs. [*Lepidoptera*.]
- 1558.—Schopfer, E. Beitrag zur *Microlepidopteren*-Fauna der Dresdner Gegend, iv. D. ent. Zs. Iris Dresden **33** 1919 pp. 117–122.
- 1559.—Schött, H. *Collembola* aus den Juan Fernandez Inseln und der Osterinsel. The natural history of Juan Fernandez and Easter Island ed. by C. Skottsberg **3** 1921 pt. 1 pp. 33–39 1 pl. Uppsala.
- 1560.—Schulthess, A. v. Zur Kenntnis äthiopischer Vespiden (*Hym.*). Ent. Mitt. Berlin **10** 1921 pp. 121–126 143–149 1 text-fig.
- 1561.—Schulthess, A. v. Eine Vespide aus dem Deutschen Entomologischen Institut (*Hym.*). Ent. Mitt. Berlin **10** 1921 pp. 200 & 201.
- 1562.—Schultz, V. Fünfmalige Kopula bei ein und demselben *Agrotis*-Pärchen. D. ent. Zs. Iris Dresden **35** 1921 pp. 21–26. [*Lepidoptera*.]
- 1563.—Schultz, V. G. M. Neues über *Agrotis chardinyi* B. (*Lep.*). Ent. Mitt. Berlin **10** 1921 pp. 175–181 9 text-figs.
- 1564.—Schultz, V. Ein Wort für *Zygaena* F. Int. ent. Zs. Guben **14** 1921 p. 158. [*Lepidoptera*.]
- 1565.—Schultze, A. Neue Rhopaloceren aus Kamerun. Arch. Natg. Berlin **81** 1916 Abt. A Heft 11 pp. 110–112. [*Lepidoptera*.]
- 1566.—Schultze, A. Weitere neue *Rhopaloceren* aus der Ausbeute der ii. Inner-Afrika-Expedition des Herzogs Adolf Friedrich zu Mecklenburg. Arch. Natg. Berlin **81** 1916 Abt. A Heft 12 pp. 136–142. [*Lepidoptera*.]
- 1567.—Schultze, A. Neue *Rhopaloceren* aus Kamerun. Arch. Natg. Berlin A **81** H. 7 1915 pp. 159–167.
- 1568.—Schumacher, F. Aphidologische Notizen i–iv. Zool. Anz. Leipzig **53** 1921 pp. 181–191 281–286. [*Hemiptera*.]
- 1569.—Schumacher, F. *Ectemnus reduvinus* H. Sch. aus der Mark Brandenburg. D. ent. Zs. Berlin **1921** p. 90. [*Hemiptera*.]
- 1570.—Schumacher, F. Über merkwürdige Käferkokons. D. ent. Zs. Berlin **1921** pp. 96–102. [*Coleoptera*.]
- 1571.—Schumacher, F. Über einige Fälle von Kalkabscheidung bei Käfern. D. ent. Zs. Berlin **1921** pp. 102–105. [*Coleoptera*.]
- 1572.—Schumacher, F. Über das Vorkommen von Pflanzenläusen in einem Kernhaus des Apfels. D. ent. Zs. Berlin **1921** pp. 106–108. [*Hemiptera*.]
- 1573.—Schuster, A. Die paläarktischen Tenebrioniden des Deutschen Entomologischen Institutes I (*Col.*). Ent. Mitt. Berlin **10** 1921 pp. 41–47.
- 1574.—Schuster, A. Revision der Tenebrioniden-Gattungen *Pachychilina* Reitter und *Pachychile* Eschscholtz. (Schluss). Kol. Rundschau Wien **9** 1921 pp. 1–27. [*Coleoptera*.]
- 1575.—Schuster, W. Entomologische Anzeichen einer wiederkehrenden tertiärzeitähnlichen Tierlebensperiode. Ent. Zs. Frankfurt-a-M. **34** 1921 pp. 80 83 87 91 95 99 106.
- 1576.—Schütte, L. Das Tönnchen der Musciden. Zool. Anz. Leipzig **53** 1921 pp. 49–51 2 text-figg. [*Diptera*.]
- 1577.—Schütze, K. Beitrag zur Kenntnis einiger Sesien. D. ent. Zs. Iris Berlin **32** 1919 pp. 116–122. [*Lepidoptera*.]
- 1578.—Scott, H. The Ptinid beetle, *Trigonogenius globulum* Solier, breeding in argol. Bull. ent. Res. London **12** 1921 pp. 133 & 134. [*Coleoptera*.]

- 1579.—Scott, H. Notes on the oviposition and habits of the Iris sawfly, *Rhadinoceraea micans* Klug. Ent. Mag. London 57 1921 pp. 229–232. [*Hymenoptera*.]
- 1580.—Scriba, F. Drei neue Schmetterlinge aus Central-Japan. Ent. Rundsch. Stuttgart 38 1921 pp. 25–29 4 figs. [*Lepidoptera*.]
- 1581.—Seabra, A. F. de. Note sur l'existence en Portugal de la Tortrix de la Vigne, *Ænophthira pileriana* Schiff. Bull. Soc. Portugaise Lisbonne 8 1920 pp. 148–150. [*Lepidoptera*.]
- 1582.—Séguy, E. Étude sur l'*Omphrale fenestralia* L. (Diptère). Bul. Muséum Paris 1921 pp. 60–66.
- 1583.—Séguy, E. Les Moustiques de France. Bul. Muséum Paris 1921 pp. 162–169. [*Diptera*.]
- 1584.—Séguy, E. Faune entomologique des Îles Canaries. ii, *Diptères* piqueurs. Bul. Muséum Paris 1921 pp. 291–295.
- 1585.—Séguy, E. Notes synonymiques sur quelques moustiques paléarctiques. Bull. Soc. ent. France Paris 1921 pp. 162–166. [*Diptera*.]
- 1586.—Séguy, E. Description d'un nouveau moustique français du groupe de l'*Aedes mariae* et synopsis des espèces de ce groupe. Bull. Soc. ent. France Paris 1921 pp. 192–195. [*Diptera*.]
- 1587.—Séguy, E. Sur deux nouveaux *Dixa* et synopsis des mâles des espèces de France. Bull. Soc. ent. France Paris 1921 pp. 199–206. [*Diptera*.]
- 1588.—Séguy, E. Les *Diptères* qui vivent au dépens des escargots. Bull. Soc. ent. France Paris 1921 pp. 238 & 239.
- 1589.—Seitz, A. Vom Ueberwintern der Schmetterlinge. Ent. Rundsch. Stuttgart 38 1921 pp. 39–40 42–43 46–48 51–52. [*Lepidoptera*.]
- 1590.—Seitz, A. Rudolf Pfitzner. Ent. Rundsch. Stuttgart 38 1921 p. 15.
- 1591.—Semenov - Tian - Shansky, A. La vie et l'oeuvre de N. R. Kokuev. Rev. Russe Ent. Petrograd 16 1916 pp. lv–lxx portrait.
- 1592.—Semenov - Tian - Shansky, A. Sur les relations géologiques du *Carabus menetriesi* Humm. (*Coleoptera*, Carabidae). Rev. Russe Ent. Petrograd 16 1917 pp. 353–360.
- 1593.—Semenov - Tian - Shansky, A. Praecursoriae Siricidarum novorum diagnoses (*Hymenoptera*). Rev. Russe Ent. Petrograd 17 1921 pp. 81–95.
- 1594.—Semenov - Tian - Shansky, A. Notice supplémentaire sur les relations géologiques du *Carabus menetriesi* Humm. (*Coleoptera*, Carabidae). Rev. Russe Ent. Petrograd 17 1921 pp. 152–153.
- 1595.—Sen, S. K. Notes on the life-history of two species of Celyphidae. Rep. Ent. meeting Pusa 4 Calcutta 1921 pp. 293–297 pls. 1 & li. [*Diptera*.]
- Sen, S. K. vide Sharma and Sen.
- 1596.—Senior-White, R. A. A note on *Suana concolor* (Walker). Spolia Zeylan. Colombo 11 1920 pp. 299–302 1 plate. [*Lepidoptera*.]
- 1597.—Senior-White, R. A. New Ceylon *Diptera*. Spolia Zeylan. Colombo 11 1921 pp. 381–395 2 plates.
- 1598.—Sergeant, E., Foley, H. et Vialatte, C. Transmission de laboratoire du typhus exanthématique par le pou. Arch. Inst. Pasteur Afrique du Nord Algiers & Tunis 1 1921 pp. 218–230 9 charts.
- 1599.—Serre, P. A. Insectes piquants et parasites au Costa Rica. Bul. Muséum Paris 1921 pp. 170–172.
- 1600.—Severin, G. Notes sur le *Microsania stigmatalis* Zett. Bull. soc. ent. Belg. 3 1921 pp. 178–179. [*Diptera*.]
- 1601.—Severin, H. P. Summary of life history of beet leafhopper (*Eutettix tenella* Baker). J. econ. ent. Geneva N.Y. 14 1921 pp. 433–436. [*Homoptera*.]
- 1602.—Seydel, Ch. Chasses Lépidoptérologiques. Bull. ent. soc. Belg. 3 1921 pp. 103–105.
- 1603.—Sharina, H. N. and Sen, S. K. Oviposition in Culicidae. Rep. ent. meeting Pusa 4 Calcutta 1921 pp. 192–198 pls. xxxi–xxxv. [*Diptera*.]

- 1604.**—Sheldon, W. G. *Oxigrapha literana* L.: its life-cycle, distribution and variation. Entomologist London **54** 1921 pp. 129-135 157-161 187-190 209-211 pl. i. [*Lepidoptera*.]
- 1605.**—Sheldon, W. G. The life-cycle and habits of *Cydia leguminana* Z., with a note on its synonymy. Entomologist London **54** 1921 pp. 225-229. [*Lepidoptera*.]
- 1606.**—Sheljuzhko, L. Einige Ergänzungen zu meinen Arbeiten. D. ent. Zs. Iris Berlin **32** pp. 130-133 1919. [*Lepidoptera*.]
- 1607.**—Shestakov, A. De duabus speciebus novis exoticis generis *Cerceris* Latr. (*Hymenoptera*, Crabronidae). Rev. Russe ent. Petrograd **16** 1917 pp. 316-318.
- 1608.**—Shestakov, A. Notice sur les espèces du genre *Cerceris* Latr. de Finlande. Rev. Russe ent. Petrograd **16** 1917 p. 410. [*Hymenoptera*.]
- 1609.**—Siegel, A. *Pamphila palaeon* Pall. nov. ab. *habeneyi* Sgl. Int. ent. Zs. Guben **15** 1921 p. 144. [*Lepidoptera*.]
- 1610.**—Siegel, A. *Odezia atrata* L. Int. ent. Zs. Guben **15** 1921 p. 160. [*Lepidoptera*.]
- 1611.**—Sihler, D. Die Gespinstmotte *Hyponomeuta evonymellus* und ihre Tätigkeit als Papiermacherin. Jahresh. Ver. Württ. **76** 1920 pp. xxiv-xxvii 4 figs. [*Lepidoptera*.]
- 1612.**—Sikord, H. Zur Bedeutung der Rückendrüse des ♂ bei der Küchenschabe (*Phyllodromia germanica*). Zs. angew. ent. Berlin **4** 1918 pp. 374-375. [*Orthoptera*.]
- 1613.**—Silvestri, F. A new species of *Termitaphis* (*Hemiptera-Heteroptera*) from India. Rec. Ind. Mus. Calcutta **22** 1921 pp. 71-74 3 text-fig.
- 1614.**—Silvestri, F. Prima notizia sulla presenza della mosca delle olive e di un parassita di essa in India. Mem. Acc. Lincei Roma **25** 1916 pp. 424-427 [*Diptera*, *Hymenoptera*.]
- 1615.**—Silvestri, F. Descrizione di alcuni Tisanuri indo-malesi. Boll. Lab. Portici Portici **11** 1916 ? pp. 85-119. [*Aptera*.]
- 1616.**—Silvestri, F. Gustavo Leonardi. Boll. Lab. Portici Portici **11** 1921 pp. 291-298.
- 1617.**—Silvestri, F. Contribuzioni alla conoscenza biologica degli *Imenotteri* parassiti. V. Sviluppo del *Platygaster dryomyiae* Silv. Boll. Lab. Portici Portici **11** 1921 pp. 299-326 pls. v-vii.
- 1618.**—Silvestri, F. Contribuzioni alla conoscenza degli insetti dannosi e dei loro simbiotici. V. La Cocciniglia del nocciuolo (*Eulecanium coryli* L.). Ann. Scuola Portici 2 Ser. **15** Paper No. 24 1919 pp. 1-74 figs. 1-34. [*Hemiptera*.]
- 1619.**—Sjöstedt, Y. Acridiidea Australica. Monographie der bisher von Australien bekannten Heuschrecken mit kurzen Fühlern. Stockholm Vet. Ak. Handl. **62** 1921. No. 3 pp. 1-318 figs. [*Orthoptera*.]
- 1620.**—Skaife, S. H. On a species of Microdon fly (*Diptera*) from Natal. Trans. Roy. Soc. S. Afric. Cape Town **9** 1921 pp. 221-222 pl. xiii.
- 1621.**—Skaife, S. H. On *Braula caeca*, Nitzsch, a dipterous parasite of the honey bee. Trans. R. Soc. S. Africa Cape Town **10** 1921 pp. 41-48 figs. 1-11.
- 1622.**—Skaife, S. H. A Tachinid parasite of the honey-bee. S. Afr. J. Sci. Johannesburg **17** 1921 pp. 196-200 3 text-fig. [*Diptera*.]
- 1623.**—Skaife, S. H. Some factors in the natural control of the wattle bagworm. S. Afric. Journ. Sc. Johannesburg **17** 1921 pp. 291-301 15 text-fig. [*Lepidoptera*.]
- 1624.**—Skinner, H. Moths collected at Hot Springs, Virginia. Ent. News Philadelphia **32** 1921 pp. 66-71 [*Lepidoptera*.]
- 1625.**—Skinner, H. A new species of *Melitaea* from Montana. Ent. News Philadelphia **32** 1921 p. 89. [*Lepidoptera*.]
- 1626.**—Skinner, H. Two new species of Hesperidae. Ent. News Philadelphia **32** 1921 p. 236. [*Lepidoptera*.]
- 1627.**—Sloane, T. G. Revisional notes on Australian Carabidae. Part vi, Tribe Bembidiini. Proc. Linn. Soc. N. S. Wales Sydney **46** 1921 pp. 192-208. [*Coleoptera*.]

1628.—Sloane, T. G. Description of a new Tiger-beetle from the Wyndham district. With some notes on recent works on Australian Cicindelidae. *Proc. Linn. Soc. N. S. Wales* **46** 1921 pp. 330-332 text-fig. [*Coleoptera*.]

1629.—Smirnov, D. Notices sur la systématique et la distribution des Longirostres (*Coleoptera*, Curculionidae). [Russian.] *Rev. Russe Ent. Petrograd* **16** 1916 pp. 14-17.

1630.—Smith, R. C. A study of the biology of the Chrysopidae. *Ann. ent. Soc. Amer. Columbus Ohio* **14** 1921 pp. 27-35. [*Neuroptera*.]

1631.—Smits van Burgst, C. A. L. *Meniscus transversostriatus* n. sp. (*Ichn.*) *Ent. Ber. Helder* **5** 1921 pp. 300-301. [*Hymenoptera*.]

1632.—Snodgrass, R. E. The mouth parts of the *Cicada*. *Proc. ent. Soc. Washington* **23** 1921 pp. 1-15 2 pls. [*Homoptera*.]

1633.—Snyder, v.'t., C. D. and A. The Flashing Interval of Fireflies. Its Temperature Coefficient: An Explanation of Synchronous Flashing. *Amer. J. Physiol. Baltimore* **51** 1920 pp. 536-542. [*Coleoptera*.]

1634.—Soudek, S. K. Variabilité mravenčů *Leptothorax tuberum* Nyl. *Časopis Praze* **18** 1921 pp. 1-5 ff. 1-6. [*Hymenoptera*.]

South, R. *vide* Wileman and South.

1635.—Spaeth, F. Philippine and Bornean species of *Hoplonota* (*Coleoptera*). *Philippine J. Sci. Manila* **18** 1921 pp. 721-732.

1636.—Spaeth, F. Zwei neue Cassiden aus dem Ussurigebiet. *Kol. Rundschau Wien* **9** 1921 pp. 84-86. [*Coleoptera*.]

1637.—Spessivtsev, P. Two new species of *Carphoborus* from East Russia (*Coleoptera*, Ipidae). *Rev. Russe ent. Petrograd* **16** 1916 pp. 64-67 figs. 1-4.

1638.—Speyer, W. Beitrag zur Biologie des gefleckten Kohltriebrüsslers (*Centorrhynchus quadridens* Pang.). *Ent. Blätter Berlin* **17** 1921 pp. 118-124 pl. [*Coleoptera*.]

1639.—Spröngerts, S. Moritz Liebmann. *D. ent. Zs. Iris Dresden* **35** 1921 p. 52.

1640.—Srdinko, J. Přispěvek k znalosti života a vývoje *Thyris fenestrella* Sc. *Časopis Praze* **16** 1919 pp. 8-17 1 text-fig. [*Lepidoptera*.]

1641.—Stackelberg, Baron A. de. Contributions à la faune diptérologique des environs de Nizhnaja Bronnaja, gouvernement de Petrograd. *Rev. Russe ent. Petrograd* **16** 1917 pp. 299-307. [*Diptera*.]

1642.—Stackelberg, Baron A. de. Contributions à la faune des Syrphides (*Diptera*) du gouvernement de Jakutsk. *Rev. Russe ent. Petrograd* **17** 1921 pp. 139-143 fig.

1643.—Stackelberg, Baron A. de. Les observations phénologiques sur les insectes des environs de Petrograd en 1918. *Bull. Station rég. prot. plantes Petrograd* **2** 1921 pp. 25-58.

1644.—Stadler, H. Schnarrende Heuschrecken. *Ent. Rundsch. Stuttgart* **38** 1921 p. 53. [*Orthoptera*.]

1645.—Stäger, R. Myrmikologische Beobachtungen auf Belalp im Sommer 1918. *Mitt. Ges. Bern Jahr.* **1919** 1920 pp. 188-203. [*Hymenoptera*.]

1646.—Stauder, H. Zu Venzmer's *Lycaena taurica*. *D. ent. Zs. Iris Dresden* **35** 1921 pp. 4-5. [*Lepidoptera*.]

1647.—Stauder, H. Neues aus Unteritalien. *D. ent. Zs. Iris Dresden* **35** 1921 pp. 26-31. [*Lepidoptera*.]

1648.—Stauder, H. Die Schmetterlingsfauna der illyro-adriatischen Festland und Inselzone. III, Systematischer Teil. *Zs. wiss. Insektenbiol. Berlin* **16** 1921 pp. 101-108 143-153 166-176 219-224 figs. [*Lepidoptera*.]

1649.—Stauder, H. *Pararge aegeria* L. saisondimorph. *Soc. Entomol. Stuttgart* **36** 1921 pp. 42 & 43. [*Lepidoptera*.]

1650.—Stauder, H. Die Zygaenidenarmut der adriatischen Inseln. *Soc. Entomol. Stuttgart* **36** 1921 pp. 1-4 6 & 7. [*Lepidoptera*.]

1651.—Stauder, H. Neue Parnassier-Formen aus Unteritalien. *Soc. Entomol. Stuttgart* **36** 1921 pp. 9-11. [*Lepidoptera*.]

1652.—Stauder, H. *Acasis mariae* Stdr. species nova. *Soc. Entomol. Stuttgart* **36** 1921 p. 29 & 30. [*Lepidoptera*.]

- 1653.—Stauder, H. Der Einfluss des heissen Klimas auf das Flugvermögen der Schmetterlinge in *lepidoptera*-geographischer Betrachtung. Ent. Anz. Wien 1 1921 pp. 89–92.
- 1654.—Stauder, H. Neue mediterrane Syntomisformen. Ent. Anz. Wien 1 1921 pp. 115–118. [*Lepidoptera*.]
- 1655.—Stauder, H. and Felkel, J. *Parnassius apollo oenipontanus*, n. subsp. Ent. Anz. Wien 1 1921 pp. 123 & 124. [*Lepidoptera*.]
- 1656.—Steimmig, G. Ein Zwitter von *Parnassius apollo* L. D. ent. Zs. Iris Dresden 34 1920 pp. 59–61 figs. [*Lepidoptera*.]
- 1657.—Stein, P. Die Anthomyiden Europas. Tabellen zur Bestimmung der Gattungen und aller mir bekannten Arten, nebst mehr oder weniger ausführlichen Beschreibungen. Arch. Natg. Berlin 81 1916 Abt. A. Heft 10 pp. 1–224. [*Diptera*.]
- 1658.—Stellwaag, F. Die Verwendung von Blausäure zur Bekämpfung der Traubenwickler. Verh. Deut. Gesell. angew. Ent. Berlin 1919 pp. 24–34. [*Lepidoptera*.]
- 1659.—Stellwaag, F. Die Schmarotzerwespen (Schlupfwespen) als Parasiten. Monog. zur angew. Ent. Nr. 6 Berlin 1921. [*Hymenoptera*.]
- 1660.—Stellwaag, F. Das Massenaufreten des Rebstechers (*Byctiscus betulae* L.) in der Rheinpfalz. Zs. angew. Ent. Berlin 4 1918 pp. 274–277. [*Coleoptera*.]
- 1661.—Stellwaag, F. Cyanwasserstoff gegen die Traubenwickler. Zs. angew. Ent. Berlin 4 1918 pp. 278–286. [*Lepidoptera*.]
- 1662.—Stenius, G. Märklige insektfynd. Notulae ent. Helsingfors 1 1921 p. 88. [*Col. Hem.*]
- 1663.—Stephens, T. C. The Taxonomic Unit. Proc. Iowa Acad. Sci. Des Moines 27 1920 pp. 41–50.
- 1664.—Sterneck, J. Nova forma *Epizeuxis calvaria* F. Casopsis Praze 18 1921 pp. 35 & 35. [*Lepidoptera*.]
- 1665.—Stertz, O. Berichtigungen und Ergänzungen zu meinen Mitteilungen über kanarische und algerische Grossschmetterlinge Iris Jahrgang 1912 und 1915. D. ent. Zs. Iris Berlin 32 1919 pp. 114–115. [*Lepidoptera*.]
- 1666.—Stertz, O. Mitteilungen über *Hypomecia quadrivirgula* Mabille und n. var. *jordana* Stertz. D. ent. Zs. Iris Berlin 32 1919 pp. 117–119 figs. [*Lepidoptera*.]
- 1667.—Stevens, O. A. Further notes on evening flowers, panurgine and halictine bees. Canad. Entom. Guelph 53 1921 pp. 65–69. [*Hymenoptera*.]
- 1668.—Steyer. *Stephanitis rhododendri* Horvath (*Hemipt.*) in Deutschland. Zs. angew. Ent. Berlin 2 1915 pp. 434 & 435.
- Stitz, H. Die Beziehungen der Ameisen zum Menschen und ihre wirtschaftliche Bedeutung. Zs. angew. Ent. Berlin 4 1918 pp. 71–128. [*Hymenoptera*.]
- 1670.—Stöckert, F. Ueber einen Fall von frontaler Gynandromorphie bei *Bombus lapidarius* L. (*Hym.*). Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 132–134.
- 1671.—Stone, W. Butterflies of the Chiricahua mountains, Arizona. Ent. News Philadelphia 32 1921 pp. 112–115. [*Lepidoptera*.]
- 1672.—Strand, E. Nomenklatorische Notizen über Schlupfwespen und eine Staphylinidengattung. Arch. Natg. Berlin Abt. A. 80 Heft 8 1915 pp. 121–122. [*Hymenoptera*, *Coleoptera*.]
- 1673.—Strand, E. Bemerkungen zu einigen Arbeiten über grönländische Insekten. Arch. Natg. Berlin Abt. A. 80 Heft 8 1915 pp. 130 & 131. [*Lepidoptera*.]
- 1674.—Strand, E. Eine neue *Eligma*-Form. Arch. Natg. Berlin Abt. A. 80 Heft 8 1915 pp. 141–142. [*Lepidoptera*.]
- 1675.—Strand, E. Zur Synonymie der Arten der Noctuidengattung *Trisuloides* Btl. Arch. Natg. Berlin Abt. A. 80 Heft 8 1915 p. 142. [*Lepidoptera*.]
- 1676.—Strand, E. Ueber einige afrikanische Bienen des Deutschen Entomologischen Museums. Arch. Natg. Berlin Abt. A. 80 Heft 9 1915 pp. 61–67. [*Hymenoptera*.]

1677.—Strand, E. *Lepidoptera* aus Ober-aegypten und dem Aegyptischen Sudan. Arch. Natg. Berlin Abt. A. 80 Heft 10 1915 pp. 95–112. [*Lepidoptera.*]

1678.—Strand, E. *Plecoptera tripalis* Wallgr. eine afrikanische Noctuide. Arch. Natg. Berlin Abt. A. 80 Heft 10 1915 pp. 112–113. [*Lepidoptera.*]

1679.—Strand, E. Bemerkungen über drei einheimische Tryphoninae. Arch. Natg. Berlin Abt. A. 80 Heft 10 1915 pp. 113–114. [*Hymenoptera.*]

1680.—Strand, E. Bemerkungen über vier "Diptidae" im Deutschen Entomol. Museum. Arch. Natg. Berlin Abt. A. 80 Heft 10 1915 pp. 115–116. [*Lepidoptera.*]

1681.—Strand, E. Ueber das Nest von *Sceliphron deformis* Sm. Arch. Natg. Berlin Abt. A. 80 Heft 10 1915 pp. 116–117. [*Hymenoptera.*]

1682.—Strand, E. H. Sauter's Formosa-Ausbeute: Zygaenidae. Arch. Natg. Berlin Abt. A. 80 Heft 10 1915 pp. 117–122. [*Lepidoptera.*]

1683.—Strand, E. H. Sauter's Formosa-Ausbeute: Bombycidae. Arch. Natg. Berlin Abt. A. 80 Heft 10 1915 pp. 123–124. [*Lepidoptera.*]

1684.—Strand, E. Nordamerikanische, insbesondere californische *Lepidoptera*. Arch. Natg. Berlin Abt. A. 80 Heft 11 1915 pp. 151–163. [*Lepidoptera.*]

1685.—Strand, E. Zur Kenntnis der Noctuidengattung *Maurilia* Möschl. Arch. Natg. Berlin Abt. A. 80 Heft 11 1915 pp. 163–6. [*Lepidoptera.*]

1686.—Strand, E. Ueber die Noctuidengattung *Trisulopsis* Strand. Arch. Natg. Berlin Abt. A. 80 Heft 11 1915 p. 167. [*Lepidoptera.*]

1687.—Strand, E. Zur Kenntnis der Gattung *Fodina* Gn. Arch. Natg. Berlin Abt. A. 80 Heft 11 1915 pp. 168–170. [*Lepidoptera.*]

1688.—Strand, E. Zur Kenntnis afrikanischer Arten der Bienengattung *Allodape* Lep. Arch. Natg. Berlin Abt. A. 80 Heft 12 1915 pp. 34–60. [*Hymenoptera.*]

1689.—Strand, E. Ueber drei afrikanische Zygaeniden. Arch. Natg. Berlin Abt. A. 80 Heft 12 1915 pp. 169–170. [*Lepidoptera.*]

1690.—Strand, E. Zur Kenntnis von *Erebria ligea* L. und *euryale* Esp. Arch. Natg. Berlin Abt. A. 81 Heft 1 1915 pp. 90–99 1 pl. [*Lepidoptera.*]

1691.—Strand, E. Einige exotische, insbesondere afrikanische *Heterocera*. Arch. Natg. Berlin Abt. A. 81 Heft 2 1915 pp. 129–134 1 pl. [*Lepidoptera.*]

1692.—Strand, E. Apidae von Creta. Arch. Natg. Berlin Abt. A. 81 Heft 4 1915 pp. 145–168. [*Hymenoptera.*]

1693.—Strand, E. Über einige orientalische und paläarktische Crabroniden der Gattungen *Spheg*, *Sceliphron* und *Anmophila* im Deutschen Entomologischen Museum. Arch. Natg. Berlin Abt. A. 81 Heft 5 1915 pp. 88–97. [*Hymenoptera.*]

1694.—Strand, E. H. Sauter's Formosa-Ausbeute: Crabronidae und Scolidae. Arch. Natg. Berlin Abt. A. 81 Hft. 7 1915 pp. 19–23. [*Hymenoptera.*]

1695.—Strand, E. H. Sauter's Formosa-Ausbeute: Noctuidae (Agaristinae, *Macrobrochis*), Aganaidae, Saturniidae, Uraniidae, Cossidae, Calidulidae und Aegeriidae. Arch. Natg. Berlin Abt. A. 81 Hft. 8 1915 pp. 34–49. [*Lepidoptera.*]

1696.—Strand, E. Ueber einige exotische Crabroniden der Gattungen *Spheg* und *Sceliphron* im Deutschen Entomologischen Museum. Arch. Natg. Berlin Abt. A. 81 Heft. 11 1916 pp. 98–109. [*Hymenoptera.*]

1697.—Strand, E. Bemerkungen über *Cheipachys* Westw. (Chalcididae). Arch. Natg. Berlin 81 1916 Abt. A. Heft 11 pp. 123–124. [*Hymenoptera.*]

1698.—Strand, E. Beiträge zur Systematik und insbesondere zur Verbreitung der Apidae. Arch. Natg. Berlin Abt. A. 81 Heft 11 1916 pp. 124–139. [*Hymenoptera.*]

1699.—Strand, E. Neue Aberrationen der Noctuide-Subfamilie Acronyctinae. Arch. Nat. Berlin Abt. A. 81 Heft 11 1916 pp. 150–165. [*Lepidoptera.*]

- 1700.—Strand, E. Psociden-Gespinnste aus Paraguay. Arch. Natg. Berlin Abt. A. 81 Heft 12 1916 pp. 135-136 1 pl. [*Psocoptera*.]
- 1701.—Strand, E. Neue Aberrationen der Noctuiden-Subfamilien Agrotinae und Cuculliinae. Arch. Natg. Berlin Abt. A. 81 Heft 12 1916 pp. 142-149. [*Lepidoptera*.]
- 1702.—Strand, E. H. Sauter's Formosa-Ausbeute: Hepialidae, Notodontidae und Drepanidae. Arch. Natg. Berlin Abt. A. 81 Heft 12 1916 pp. 150-165. [*Lepidoptera*.]
- 1703.—Strand, E. Apidologisches, insbesondere über paläarktische *Andrena*-Arten, auf Grund von Material des Deutschen Entomologischen Museums. Arch. Natg. Abt. A. 87 Heft 3 1921 pp. 266-304. [*Hymenoptera*.]
- 1704.—Strand, E. Apidologisches, insbesondere über paläarktische *Halictus*-Arten, auf Grund von Material des Deutschen Entomologischen Museums. Arch. Natg. Abt. A. 87 Heft 3 1921 pp. 305-322. [*Hymenoptera*.]
- 1705.—Strand, E. Fünf neue Insektengattungen. Int. ent. Zs. Guben 14 1921 p. 174.
- 1706.—Strand, E. Ueber vier mediterrane Bienen. Int. ent. Zs. Guben 15 1921 pp. 2-3. [*Hymenoptera*.]
- 1707.—Strand, E. *Tubuliferola* Strand 1917 ist kein Synonym! Int. ent. Zs. Guben 15 1921 p. 3. [*Lepidoptera*.]
- 1708.—Strand, E. *Lepidoptera* und *Hymenoptera* aus Kurland, gesammelt von Dr. W. Horn. Int. ent. Zs. Guben 15 1921 pp. 36-37.
- 1709.—Strand, E. Notizen zum Vorkommen einiger deutscher *Lepidoptera*. Int. ent. Zs. Guben 15 1921 pp. 37-38.
- 1710.—Strand, E. Zwei neue neotropische *Nymphaliden*-Formen. Int. ent. Zs. Guben 15 1921 pp. 109-110. [*Lepidoptera*.]
- 1711.—Strand, E. Kritische Bemerkungen und Berichtigungen zum Supplementband I des Hampson'schen "Catalogue of the *Lepidoptera* Phalaenae." D. ent. Zs. Iris, Dresden, 34 1920 pp. 217-226.
- Strand, E. See Bryk & Strand.
- 1712.—Strickland, E. H. The invasion of Southern Alberta by beet webworms. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 29-31. [*Lepidoptera*.]
- 1713.—Strickland, E. H. Parasites of the pale western cutworm in Alberta. Canad. Entom. Guelph 53 1921 pp. 97-99. [*Lepidoptera*.]
- 1714.—Stshelkanovtzev, J. Contributions à la faune des Orthoptères (*Orthoptera saltatoria*) de la Russie. Rev. Russe Ent. Petrograd 17 1921 pp. 135-138.
- 1715.—Stumper, R. Études sur les Fourmis. Recherches critiques sur l'odorat. Bull. soc. ent. Belg. 3 1921 pp. 24-30. [*Hymenoptera*.]
- 1716.—Stumper, R. Études sur les Fourmis. II. Observations sur la genèse d'une piste du *Lasius fuliginosus*. Bull. soc. ent. Belg. 3 1921 pp. 84-88. [*Hymenoptera*.]
- 1717.—Stumper, R. Études sur les Fourmis. III. Recherches sur l'éthologie du *Formicoxenus nitidulus* Nyl. Bull. ent. soc. Belg. 3 1921 pp. 90-97. [*Hymenoptera*.]
- 1718.—Sturtevant, A. H. The vermilion gene and gynandromorphism. [in *Drosophila*]. Proc. Soc. Exp. Biol. Med. New York 17 1920 pp. 70 71. [*Diptera*.]
- 1719.—Surcouf, J. M. R. Notes biologiques sur certains *Diptères*. Bul. Muséum Paris 1921 pp. 67-74.
- 1720.—Surcouf, J. M. R. Revision du genre *Pelecorhynchus* Macquart (*Diptères* piqueurs de la famille Tabanidae). Bul. Muséum Paris 1921 pp. 221-224.
- 1721.—Surcouf, J. M. R. Note sur un accouplement aberrant chez les *Diptères*. Bull. Soc. ent. France Paris 1921 p. 46.
- 1722.—Surcouf, J. Note sur les *Diptères* piqueurs (Tabanidae) recueillis au Laos par M. Vitalis de Salvaza. Bull. Soc. ent. France Paris 1921 pp. 285-287.
- 1723.—Surcouf, J. *Diptera* fam. Tabanidae. Gen. Ins. Bruxelles Fasc. 175 1921 pp. 182 pls. v.

1724.—Swain, A. F. Miscellaneous studies in the family Aphididae. Ent. News Philadelphia 32 1921 pp. 209–213 225–229. [*Homoptera*.]

1725.—Swaine, J. M. The nervous system of the larva of *Sthenopsis thule* Strecker. (Continuation). Canad. Entom. Guelph 53 1921 pp. 29–34 pl. ii. [*Lepidoptera*.]

1726.—Swellengrebel, N. H. De mannelijke genitalien der Nederlandsch Indische Anophelinen. Tijdschr. Ent. 's-Gravenhage 64 1921 pp. 36–45 7 text fig. [*Diptera*.]

1727.—Swezey, O. H. Some recent insect immigrants in the Hawaiian islands. J. econ. ent. Geneva N.Y. 14 1921 pp. 254–258.

1728.—Swezey, O. H. A new bark beetle from Easter island. Proc. Hawaii. ent. soc. Honolulu 4 1921 p. 462. [*Coleoptera*.]

1729.—Swezey, O. H. A new grass leafroller, *Omiodes giffardi*. Proc. Hawaii. ent. soc. Honolulu 4 1921 p. 469. [*Lepidoptera*.]

1730.—Swezey, O. H. Notes on *Proterhinus abnormis*, a leafminer in leaves of *Broussaia arguta*. Proc. Hawaii. ent. soc. Honolulu 4 1921 pp. 470 & 471. [*Coleoptera*.]

1731.—Swezey, O. H. Kauai insect notes and records. Proc. Hawaii. ent. soc. Honolulu 4 1921 pp. 521–523.

1732.—Swezey, O. H. *Opostega* in the Hawaiian islands. Proc. Hawaii. ent. soc. Honolulu 4 1921 pp. 531–536 pl. ix. [*Lepidoptera*.]

1733.—Swezey, O. H. The butterflies of the Samoan islands. Proc. Hawaii. ent. soc. Honolulu 4 1921 pp. 601–605. [*Lepidoptera*.]

1734.—Swynnerton, C. F. M. An examination of the tsetse problem in north Mossurise, Portuguese East Africa. Bull. Ent. Res. London 11 1921 pp. 315–385 pls. ix–xvii map. [*Diptera*.]

1735.—Szymanski, J. S. Zur Methodik der entomologischen Untersuchungen. Zs. angew. Ent. Berlin 5 1919 pp. 93–97.

1736.—Takahashi, R. Observations on *Hydrometridae* (2). Konch. Sek. Gifu 25 1921 pp. 9–12. [*Hemiptera*.]

1737.—Talbot, G. Introduction [account of the Hill Museum]. Bull. Hill Mus. London 1 1921 pp. 3–15 6 pls. [*Lepidoptera*.]

1738.—Talbot, G. Euploeines forming mimetic groups in the islands of Key, Aru, Tenimber, Australia and Fiji. Bull. Hill Mus. London 1 1921 pp. 16–31 pls. i–iv. [*Lepidoptera*.]

1739.—Talbot, G. New *Lepidoptera* collected by Mr. T. A. Barns in east central Africa. Introduction. Bull. Hill Mus. London 1 1921 pp. 40–44 map.

Talbot, G. *vide* Joicey & Talbot.

Tänzer, E. *vide* Osterwald, H. and.

1740.—Tänzer, E. und Osterwald, H. Morphogenetische Untersuchungen und Beobachtungen an Culiciden-Larven. I. Teil. Morphogenetische Beobachtungen von Ernst Tänzer. II. Teil. Beobachtungen während der Submersion von Hans Osterwald und Ernst Tänzer. Arch. Natg. Berlin Abt. A 87 Heft 7 1921 pp. 136–182 27 textfigg. [*Diptera*.]

1741.—Tattersfield, F. and Roberts, A. W. R. The influence of chemical composition on the toxicity of organic compounds to wireworms. J. Agric. Sci. Cambridge 10 1920 pp. 199–232 18 diagrams.

1742.—Teichmann, E. Die Bekämpfung der Wachsmotte (*Galleria mellonella*) durch Blausäure. Zs. angew. Ent. Berlin 4 1918 pp. 287–289. [*Lepidoptera*.]

1743.—Teichmann, E. Zur Biologie des Kabinettkäfers (*Anthrenus museorum*). Zs. angew. Ent. Berlin 4 1918 pp. 375–376. [*Coleoptera*.]

1744.—Teichmann, E. Die Bekämpfung der Fliegenplage. Zs. angew. Ent. Berlin 4 1918 pp. 347–365. [*Diptera*.]

1745.—Teichmann, E. Blausäure-Verfahren und Winterbekämpfung der Stechmücken. Zs. angew. Ent. Berlin 5 1919 pp. 118–125. [*Diptera*.]

- 1746.—Teichmann, E. und Andres, A. *Calandra granaria* L. und *Calandra oryzae* L. als Getreideschädlinge. Zs. angew. Ent. Berlin 6 1919 pp. 1-24. [*Coleoptera*.]
- 1747.—Teichmann, E. Dipteren als hygienische und wirtschaftliche Schädlinge. Verh. deut. Gesell. angew. Ent. Berlin 1919 pp. 105-121.
- 1748.—Tenenbaum, S. *Isomira polonica* n. sp. (*Coleopt*). Bull. Acad. Polonaise Sci. Lettres, Classe Sci. Math. et Naturelles Serie B 1921 pp. 32-34 fig. [*Coleoptera*.]
- 1749.—Teodoro, G. Le glandule ceripare del *Ceroplastes sinensis* Del Guer. e considerazioni generali su tali organi nei Coccidi. Bull. Soc. ent. Ital. Firenze 51 1921 pp. 37-41. [*Hemiptera*.]
- 1750.—Teyrovský, V. Studie o Českých Acanthosominach I. Časopis Praz 17 1920 pp. 6-15 1 pl. [*Hemiptera*.]
- 1751.—Theobald, F. V. New and little known British Aphides. vi. Entomologist London 54 1921 pp. 230-233. [*Homoptera*.]
- 1752.—Thienemann, A. Reisenester der Waldameise bei Hilchenbach. Jahresber. Prov. Ver. Wiss. Münster 43 pp. 148-150 2 pls. 1915. [*Hymenoptera*.]
- 1753.—Thienemann, A. Die Chironomidenfauna Westfalens. (Beiträge zur Kenntnis der westfälischen Süßwasserfauna. VII). Jahresber. Prov. Ver. Wiss. Münster 46 1918 pp. 19-63. [*Diptera*.]
- 1754.—Thienemann, A. Eine eigenartige Überwinterungsweise bei einer Chironomidenlarve. Zool. Anz. Leipzig 52 1921 pp. 285-288. [*Diptera*.]
- 1755.—Thompson, W. R. Contributions à la connaissance des formes larvaires des Sarcophagides. i. *Engyrops pecchiolii* Rond. Bull. Soc. ent. France Paris 1921 pp. 27-31. [*Diptera*.]
- 1756.—Thompson, W. R. Contributions à la connaissance des formes larvaires des Sarcophagides. ii. *Ptychoneura rufitarsis* Meig. Bull. Soc. ent. France Paris 1921 pp. 219-222. [*Diptera*.]
- 1757.—Thompson, W. R. Studies of *Zenillia roseanae* B. & B. a parasite of the European corn borer (*Pyrausta nubilalis* Hb.). Proc. ent. Soc. Washington 23 1921 pp. 127-139 pls. viii-x. [*Diptera*.]
- 1758.—Thomsen, M. Bøgeloppen i Skoven og Frugthaven (Occurrence of *Orchestes fagi*). Ent. Medd. Kjöbenhavn 13 1921 pp. 333-7. [*Coleoptera*.]
- 1759.—Thomsen, M. Masseoptraeden af *Bladlus* (Mass-occurrence of *Aphidae*). Ent. Medd. Kjöbenhavn 13 1921 p. 338. [*Hemiptera*.]
- 1760.—Turner, J. Ein kleiner Beitrag zur *Lepidopteren*fauna des Neckgebietes. Ent. Zs. Frankfurt-a-M. 34 1921 pp. 79 82 87 91 96 100 108.
- 1761.—Tillyard, R. J. Neuropteroid insects of the Hot Springs Region, New Zealand, in relation to the problem of trout-food. N. Zealand J. Sci. Tech. Wellington 3 pp. 271-279.
- 1762.—Tillyard, R. J. The wing-venation of the Leptoperlidae (Order Perlaria), with description of a new species of the genus *Dinotoperla*, from Australia. Trans. R. Soc. S. Aust. Adelaide 45 1921 pp. 270-274 figs. 1-4. [*Plecoptera*.]
- 1763.—Tillyard, R. J. Revision of the family Eustheniidae (Order Perlaria) with descriptions of new genera and species. Proc. Linn. Soc. N.S. Wales Sydney 46 1921 pp. 221-236 pls. xi-xv 4 text fig. [*Plecoptera*.]
- 1764.—Tillyard, R. J. Mesozoic Insects of Queensland. No. 8. *Hemiptera Homoptera* (Contd.). The genus *Mesogereon*; with a discussion of its relationship with the Jurassic Palaeontinidae. Proc. Linn. Soc. N.S. Wales Sydney 46 1921 pp. 270-284 pls. xvi-xxi 7 text figg.
- 1765.—Tillyard, R. J. A new genus and species of May-fly (Order *Plecoptera*) from Tasmania, belonging to the family Siphuridae. Proc. Linn. Soc. N.S. Wales Sydney 46 1921 p. 409 pl. xxxiv and 2 textfigg.
- 1766.—Tillyard, R. J. Two fossil insect wings in the collection of Mr. John Mitchell, from the upper Permian of Newcastle, N.S.W., belonging to the Order *Hemiptera*. Proc. Linn. Soc. N.S. Wales Sydney 46 1921 pp. 413-422 pl. xxxv and 2 textfigg.

- 1767.—Tillyard, R. J. On an Anisozygopterous larva from the Himalayas (Order *Odonata*). Rec. Ind. Mus. Calcutta 22 1921 pp. 93–107 pl. xiii and 5 textfigg.
- 1768.—Tillyard, R. J. A new classification of the Order *Perlaria*. Canad. Entom. Guelph 53 1921 pp. 35–43. [*Plecoptera*.]
- 1769.—Tillyard, R. J. On some interesting archaic insects. Proc. Hawai. ent. Soc. Honolulu 4 1913 pp. 525–530.
- 1770.—Tillyard, R. J. Description of a new dragon fly belonging to the genus *Uropetala* Selys. Tr. New Zealand Inst. 53 1921 pp. 343–346 pl. liii. [*Paraneuroptera*.]
- 1771.—Tillyard, R. J. Studies of New Zealand *Trichoptera*, or caddisflies: No. i. Description of a new genus and species belonging to the family *Sericostomatidae*. Tr. New Zealand Inst. Wellington 53 1921 pp. 346–350.
- 1772.—Tillyard, R. J., Brues, C. T. and Lea, A. M. The insects of Macquarie Island; with appendices by C. T. Brues and A. M. Lea. Sci. Rep. Australasian Antarctic Exped. 1911–14 Ser. C. 5 Part 8 1920 pp. 1–35 figs. 1–22.
- 1773.—Timberlake, P. H. Notes on the Hawaiian bees of the genus *Megachile*. Proc. Hawai. ent. Soc. Honolulu 4 1921 pp. 551–556. [*Hymenoptera*.]
- 1774.—Timberlake, P. H. Description of a new species of *Ootetrastichus* from Formosa. Proc. Hawai. ent. Soc. Honolulu 4 1921 pp. 557–563. [*Hymenoptera*.]
- 1775.—Timm, P. Zur Lebensweise der Bienenlaus (*Braulta coeca* Nitzsch). —Bemerkenswerte Insektenfunde aus Westpreussen. Ber. Westpreuss. B.-Z. Ver. 39 1917 No. 3 pp. 1–6. [*Diptera*.]
- 1776.—Tölg, F. *Psylliodes affinis* Payk., der Kartoffelerdfloh. I. Teil. Morphologie und Biologie der Präimaginalstadien. Zs. angew. Ent. Berlin 2 1915 pp. 1–9. [*Coleoptera*.]
- 1777.—Tonnoir, A. Une nouvelle espèce européenne du genre *Phlebotomus*. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 53–56. [*Diptera*.]
- 1778.—Tonnoir, A. Une nouvelle espèce européenne du genre *Phlebotomus*. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 333–335. [*Diptera*.]
- 1779.—Tonnoir, A. *Conopidae* de Belgique. Bull. ent. soc. Belg. 3 1921 pp. 67–78. [*Diptera*.]
- 1780.—Tonnoir, A. Notes sur les *Chloropidae* (*Dipt.*) de Belgique. Bull. ent. soc. Belg. 3 1921 pp. 131–136.
- 1781.—Tonnoir, A. Faune entomologique des Iles Canaries. III. *Diptères*: *Psychodidae*. Bul. Muséum Paris 1921 pp. 296–7.
- 1782.—Torre-Bueno, J. R. de la. New records of aquatic *Hemiptera* for the United States, with description of new species. Ent. News Philadelphia 32 1921 pp. 273–276. [*Heteroptera*.]
- 1783.—Tothill, J. D. Revision of the nearctic species of the tachinid genus *Ernestia* R.-D. Canad. Entom. Guelph 53 1921 pp. 199–205. [*Diptera*.]
- 1784.—Tottenham, C. E. *Saprosites* (? *parallelus* Har.) in Britain. Ent. Mag. London 57 1921 p. 252. [*Coleoptera*.]
- 1785.—Townsend, C. H. T. Some new Muscoid genera ancient and recent. Insecutor Ins. Menstr. Washington 9 1921 pp. 132–134. [*Diptera*.]
- 1786.—Trägårdh, I. Untersuchungen über einige schädliche Forstinsekten in Schweden. Zs. angew. Ent. Berlin 5 1919 pp. 98–104.
- 1787.—Trautmann, W. Untersuchungen an einigen Goldwespenformen. Notulae Ent. Helsingfors 1 1921 pp. 103–106. [*Hymenoptera*.]
- 1788.—Treherne, R. C. and Ruhman, M. H. The control of the cabbage root maggot in British Columbia. Ann. Rep. Ent. Soc. Ont. Toronto 51 1921 pp. 51–53. [*Diptera*.]
- 1789.—Tshugunov, S. Contributions à la faune de *Lépidoptères* des prémons de l'Alataou de Kuznetz. Rev. Russe Ent. Petrograd 16 1916 pp. 97–105.
- 1790.—Tullgren, A. Två bortgångna norska entomologer. Ent. Tidskr. Uppsala 41 1921 pp. 144–146.

1791.—Turati, E. Nuove forme di *Lepidotteri*, correzioni e note critiche. IV. Naturalista sicil. Palermo 23 1919 pp. 203–370 pls. i–iv.

1792.—Turati, E. *Lepidotteri* di Cirenaica. Atti soc. ital. sci. nat. Milan 60 1921 pp. 211–229 9 figs.

1793.—Turner, A. J. Revision of Australian *Lepidoptera*—Hypsiidae, Anthelidae. Proc. Linn. Soc. N.S. Wales Sydney 46 1921 pp. 159–191.

1794.—Turner, R. E. On a collection of Sphecoidea sent by the Agricultural Research Institute, Pusa, Bihar. With Appendix, containing two descriptions, by Dutt, G. R. Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917 pp. 173–205. [*Hymenoptera*.]

1795.—Uffeln, K. Die Grossschmetterlinge Westfalens. Nachträge und Berichtigungen. Jahresb. ProvVer. Wiss. Münster 42 1914 pp. 41–95. [*Lepidoptera*.]

1796.—Uffeln, K. Die Grossschmetterlinge Westfalens. II. Nachträge. Jahresber. ProvVer. Wiss. Münster 45 1917 pp. 100–104. [*Lepidoptera*.]

1797.—Uffeln, K. Beitrag zur Kenntnis der Mordraupen. Jahresber. ProvVer. Wiss. Münster 45 1917 pp. 105–8. [*Lepidoptera*.]

1798.—Uffeln, K. Begattungsver-such zwischen Tagfalter und Spinner. Jahresber. ProvVer. Wiss. Münster 45 1917 pp. 108–110. [*Lepidoptera*.]

1799.—Uffeln, K. Entomologische Beobachtungen aus Westfalen. Int. ent. Zs. Guben 15 1921 pp. 95–96 107–108 124–127 140–142 149–150. [*Lepidoptera*.]

1800.—Uichanco, L. B. New records and species of Psyllidae from the Philippine Islands, with descriptions of some preadult stages and habits. Philippine J. Sci. Manila 13 1921 pp. 259–288 5 plates. [*Hemiptera*.]

1801.—Uichanco, L. B. Musculature and mechanism of movement of the tarsi in Aphids. Psyche Boston Mass. 28 1921 pp. 63–68 pl. [*Hemiptera*.]

1802.—Uichanco, L. B. Reproduction in the Aphididae with a considera-

tion of the modifying influence of environmental factors. Psyche Boston Mass. 28 1921 pp. 95–109. [*Hemiptera*.]

1803.—Ulmer, G. *Ephemeropteren* von Aquatorial-Afrika. Arch. Natg. Berlin Abt. A 81 Hft. 7 1915 pp. 1–19.

1804.—Ulmer, G. Über einige *Ephemeropteren*-Typen älterer Autoren. Arch. Natg. Berlin Abt. A 87 Heft 6 1921 pp. 229–267 21 textfigg.

1805.—Ulmer, G. Die von Herrn Baron v. Klinckowström auf den Färöern gesammelten *Trichopteren*. Ark. Zool. Stockholm 14 1921 No. 3 pp. 1–3 1 fig.

1806.—Ulmer, G. Die *Trichopteren*-Literatur von 1910–1914 (fortsetzung). Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 159–160 198–200 238–240.

1807.—Ulmer, G. Die *Trichopteren*-fauna Deutschlands. III. Die *Trichopteren* von Bayern. Zs. wiss. Insektenbiol. Berlin 16 1921 pp. 183–186 206–218.

1808.—Urban, C. Die Nahrungspflanzen den *Ceuthorrhynchus*. Ent. Blätter Berlin 17 1921 pp. 19–22. [*Coleoptera*.]

1809.—Uvarov, B. P. Notes on the *Orthoptera* in the British Museum. 1. The group of Euprepocnemini. Trans. ent. soc. London 1921 pp. 106–144.

1810.—Uvarov, B. P. Records and descriptions of Indian Acrididae. Ann. Nat. Hist. London 7 1921 pp. 480–508. [*Orthoptera*.]

1811.—Uvarov, B. P. Records and descriptions of South-African grasshoppers of the groups Arcypterae and Scyllinae. Ann. Nat. Hist. London 8 1921 pp. 369–392. [*Orthoptera*.]

1812.—Uvarov, B. P. The geographical distribution of *Orthopterous* insects in the Caucasus and in Western Asia. Proc. Zool. Soc. London 1921 pp. 447–472 map.

1813.—Uvarov, B. P. A contribution to our knowledge of the *Orthoptera* Acridioidae of Mesopotamia and N.W. Persia. J. Bombay Nat. Hist. Soc. 27 1921 pp. 803–812.

1814.—Uvarov, B. P. Three new alpine *Orthoptera* from Central Asia. J. Bombay Nat. Hist. Soc. **28** 1921 pp. 71–75.

1815.—Uvarov, B. P. On the species of the genus *Basileus* Sauss. and Pict. (*Orth. Copiphorinae*). Ent. News Philadelphia **32** 1921 pp. 308–310 figs.

1816.—Uvarov, B. P. A preliminary revision of the genus *Dociostaurus* Fieb. Bull. ent. Res. London **11** 1921 pp. 397–407. [*Orthoptera*.]

1817.—Uvarov, B. P. A revision of the genus *Locusta* L. (= *Pachytylus* Fieb.), with a new theory as to the periodicity and migrations of locusts. Bull. ent. Res. London **12** 1921 pp. 135–163. [*Orthoptera*.]

1818.—Uvarov, B. P. Some new *Orthoptera* from the Caucasus. Ent. Mag. London **57** 1921 pp. 44–50.

1819.—Uvarov, B. P. On the native country of the common house-cricket (*Gryllus domesticus* L.), with a description of a new variety. Ent. Mag. London **57** 1921 pp. 138–140. [*Orthoptera*.]

1820.—Uvarov, B. P. *Eremiaphilus fraseri*, sp. n., a new mantid from Mesopotamia. Ent. Mag. London **57** 1921 p. 175. [*Orthoptera*.]

1821.—Uvarov, B. P. A new genus and species of *Orthoptera* found in a greenhouse in England. Ent. Mag. London **57** 1921 pp. 206–209.

1822.—Uvarov, B. P. *Conophyma mitchelli* sp. n., a new alpine grasshopper from Kashmir. Ent. Mag. London **57** 1921 pp. 268–270. [*Orthoptera*.]

1823.—Uvarov, B. P. Descriptions of four new *Orthoptera* from Macedonia. Ent. Record London **33** 1921 pp. 155–159.

1824.—Uyttenboogaart, D. L. *Polyphylla fullo* L. Ent. Ber. Helder **5** 1921 pp. 298–300. [*Coleoptera*.]

1825.—Uyttenboogaart, D. L. In Memoriam Isaac Birger Ericson. Ent. Ber. Helder **5** 1921 pp. 329–330.

1826.—Valle, K. J. Zur Kenntniss der Odonatenfauna Finlands. Act. Soc. Fauna et Fl. Fenn. Helsingfors **47** No. 3 1920 pp. 1–42 figs. 1–5. [*Paraneuroptera*.]

1827.—Valle, K. J. Zur Kenntnis der Odonatenfauna Finlands II. Die finnischen arten der *Aeschna crenata* Gruppe und ihre Deutung. Act. Soc. Fauna et Fl. Fenn. Helsingfors **48** 1921 No. 4 27 pp. 2 plates.

1828.—Valle, K. J. Die Eiablage zweier Agrioniden. Notulae Ent. Helsingfors **1** 1921 p. 112. [*Odonata*.]

1829.—van Bemmelen, J. F. Das Farbenmuster der mimetischen Schmetterlinge. Zool. Anz. Leipzig **52** 1921 pp. 269–277. [*Lepidoptera*.]

1830.—van Bemmelen, J. F. The interrelations of the species belonging to the genus *Saturnia*, judged by the colour-pattern of their wings. P. Ak. Amsterdam **22** 1920 pp. 447–456 pl. [*Lepidoptera*.]

1831.—van Bemmelen, J. F. The wing-design of Chaerocampinae. P. Ak. Amsterdam **22** 1920 pp. 738–747 figs. 1–3. [*Lepidoptera*.]

1832.—van den Plas, V. H. Note sur les Chenilles de Psychidae. Sudan Notes & Rec. Khartoum **3** 1920 pp. 79–81. [*Lepidoptera*.]

1833.—Van Duzee, M. C. Notes and descriptions of a few North American Dolichopodidae (*Diptera*). Psyche Boston Mass. **28** 1921 pp. 120–129 figs.

1834.—Van Duzee, M. C., Cole, F. R. & Aldrich, J. M. The *Dipterous* genus *Dolichopus* Latreille in North America. Bul. U.S. Nat. Mus. No. **116** 1921 304 pp. 16 plates.

1835.—van Emden, F. Versuch einer Aufstellung von Gattungsbestimmungstabellen der Carabidenlarven. Suppl. Ent. Berlin **8** 1919 pp. 1–33. 49 figs. [*Coleoptera*.]

1836.—van Emden, F. Beschreibung der Larve von *Pheropsophus hispanicus* Dej. (*Col. Carab.*). Suppl. Ent. Berlin **8** 1919 pp. 34 40 figs.

1837.—van Zijp, C. Über des Vorkommens von Cantharidin in *Horia debyi* und *Cissites maxillosa*. Treubia Buitenzorg **2** 1921 pp. 93–96 figs. [*Coleoptera*.]

1838.—Veitch, R. and Greenwood, W. The food plants or hosts of some Fijian insects. Proc. Linn. Soc. N. S. Wales Sydney **46** 1921 pp. 505–517.

1839.—Venzmer, G. Zur Kenntnis der Tagfalter des Bulghar Daghs in Kleinasien. D. ent. Zs. Iris. Dresden 34 1920 pp. 23–52. [*Lepidoptera*.]

1840.—Verheine, A. Die Eibildung der Musciden. Zool. Jahrb. Jena Abt. f. Anat. 42 1921 pp. 149–212 6 plates 2 text-figs. [*Diptera*.]

1841.—Verhoeff, K. W. Zur Kenntnis der Clavicornia-Larven. Zool. Anz. Leipzig 53 1921 pp. 30–40. [*Coleoptera*.]

1842.—Verhoeff, K. W. Zur Lebens- und Entwicklungsgeschichte sowie Regeneration der *Silpha obscura* und *Phosphuga atrata* (Col.). Suppl. Ent. Berlin 8 1919 pp. 41–116 figs.

1843.—Verhoeff, K. W. Über vergleichende Morphologie der Mundwerkzeuge der *Coleopteren*-Larven und Imagines, zugleich ein Beitrag zur Entwicklung, Biologie und Systematik der *Carabus* Larven. Zool. Jahrb. Jena Abt. f. Syst. 44 1921 pp. 69–194 figs.

1844.—Verity, R. An essay on the systematic study of variation in the races of *Zygaena filipendulae* L. and of its subspecies *stoechadis* Brkh. Ent. Record London 33 1921 pp. 81–90 105–115 122–129 145–160. [*Lepidoptera*.]

1845.—Virlaine, L. Note sur la Spermiogenèse et la double Spermatogenèse des Lépidoptères. Mem. Ac. R. Belgique Bruxelles Ser. 2 4 1920 fasc. 4 pp. 1–28 pls. i iii. [*Lepidoptera*.]

Vialatte, C. vide Sergent, Foley and Vialatte.

1846.—Viehmeyer, H. Die mitteleuropäischen Beobachtungen von *Harpagoxenus sublevis* Mayr. Biol. Centralbl. Leipzig 41 1921 pp. 269–278. [*Hymenoptera*.]

1847.—Viehmeyer, H. Ameisen von Singapore. Beobachtet und gesammelt von H. Overbeck. Arch. Natg. Berlin Abt. A 81 Heft. 8 1915 pp. 108–168. [*Hymenoptera*.]

1848.—Viereck, H. L. A new *Pristomerine* from California. Ent. News 32 1921 pp. 172–174. [*Hymenoptera*.]

1849.—Viereck, H. L. A new species of *Habrobracon*. Ent. News Philadelphia 32 1921 p. 174. [*Hymenoptera*.]

1850.—Viereck, H. L. First supplement to "Type-species of the genera of Ichneumon-flies." Proc. U.S. nat. Mus. Washington 59 No. 2364 Washington 1921 pp. 129–150. [*Hymenoptera*.]

1851.—Viereck, H. L. Descriptions of new Ichneumonidae in the collection of the Museum of Comparative Zoology, Cambridge, Mass. Psyche Boston Mass. 28 1921 pp. 70–83. [*Hymenoptera*.]

1852.—Villeneuve, J. Descriptions d'espèces nouvelles du genre *Actia* Rob. Desv. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 45–47. [*Diptera*.]

1853.—Villeneuve, J. Descriptions de *Diptères* nouveaux. Ann. Soc. ent. Belgique Bruxelles 61 1921 pp. 157 161.

1854.—Villeneuve, J. Descriptions de Tachinaires Africains nouveaux. Rev. zool. Afric. Bruxelles 9 1921 pp. 29–32. [*Diptera*.]

1855.—Vimmer, A. and Komárek, J. O Larvách evropských druhů čeledě Blepharoceridae (*Dipt.*). Časopis Praze 18 1921 pp. 37–55 figs. 1–7.

Vimmer, A. vide Baudys and Vimmer.

1856.—Vogel, L. H. The cabbage seed stalk weevil (*Ceutorrhynchus quadridens* Panzer) an important pest of cabbage seed plants on Long island. Canad. Entom. Guelph 53 1921 pp. 169–171. [*Coleoptera*.]

1857.—Vogel, R. Zur Kenntnis der Geruchsorgane der Wespen und Bienen. Zool. Anz. Leipzig 53 1921 pp. 20–28 4 text-fig. [*Hymenoptera*.]

1858.—Vogel, R. Bemerkungen zur Topographie und Anatomie der Leuchtorgane von *Luciola chinensis* L. (Fauna et anatomia ceylonica, Nr. 7). Jenaisch. Zs. Natw. 57 (N.S. 50) 1921 pp. 269–274 1 pl. [*Coleoptera*.]

1859.—Vogel, R. Zur Kenntnis des Baues und der Funktion des Stachels und des Vorderdarmes der Kleiderlaus (*Pediculus vestimenti* Nitzsch). Zool. Jahrb. Jena Abt. f. Anat. 42 1921 pp. 229–258 3 pls. 4 text-figs. [*Anoplura*.]

1860.—Vogel, R. Kritische und ergänzende Mitteilungen zur Anatomie des Stechapparats der Culiciden und

Tabaniden. Zool. Jahrb. Jena Abt. f. Anat. 42 1921 pp. 259-282 1 pl. 10 text-figs. [*Diptera.*]

1861.—Vogt. *Argynnis elisa stechei* subsp. n. Int. ent. Zs. Guben 15 1921 p. 55. [*Lepidoptera.*]

1862.—Von Hess, C. Untersuchungen zur Physiologie der Stirn- und Augen bei Insekten. Arch. ges. Physiol. Berlin 181 1920 pp. 1-16 4 figs.

1863.—Vorbrott, C. Schmetterlinge der Schneestufe Schweizerischer Hochgebirge. Int. ent. Zs. Guben 15 1921 pp. 145-148. [*Lepidoptera.*]

1864.—Voss, E. Ein neuer *Hoplorhinoides* (Curcul.) aus Zentral-Amerika. D. ent. Zs. Berlin 1921 p. 80. [*Coleoptera.*]

1865.—Wade, J. S. Notes on ecology of injurious Tenebrionidae. Ent. News Philadelphia 32 1921 pp. 1-6. [*Coleoptera.*]

1866.—Wade, J. S. Notes on defensive scent glands of certain *Coleoptera*. Psyche Boston Mass 28 1921 pp. 145-149.

1867.—Wagner, F. *Orgyia* nov. hybr. *gadollae*. Int. ent. Zs. Guben 15 1921 pp. 17-18 33-34 3 text-figs. [*Lepidoptera.*]

1868.—Wagner, F. Ueber *Nychiodes obscuraria* Vill. (= *cividaria* Hb.). D. ent. Zs. Iris Dresden 33 1919 pp. 105-116 figs. [*Lepidoptera.*]

Wagner, H. vide Neresheimer and Wagner.

1869.—Wahlgren, E. Tycho Tullberg. Ent. Tidskr. Uppsala 42 1921 pp. 60-64.

1870.—Walker, J. J. Some aspects of Insect Life in New Zealand. Proc. ent. soc. London 1920 1921 pp. 99-138.

1871.—Wall, F. Butterflies at sea. J. Bombay Nat. Hist. Soc. 28 1921 p. 293. [*Lepidoptera.*]

1872.—Wallis, R. H. Insect associations. Naturalist London 1921 pp. 99-100.

1873.—Walton, W. R. Entomological drawings and draughtsmen: their relation to the development of economic entomology in the United States. Proc. ent. Soc. Washington 23 1921 pp. 69-99.

1874.—Warnecke, G. Einige Skizzen zur Zoogeographie der Schmetterlinge Deutschlands. D. ent. Zs. Iris Dresden 33 1919 pp. 99-105 maps. [*Lepidoptera.*]

1875.—Warnecke, G. Das Männchen von *Parnassius apollo silesianus* Marschn. D. ent. Zs. Iris Dresden 35 1921 pp. 1-2 fig. [*Lepidoptera.*]

1876.—Warnecke, G. Ueber die Makrolepidopterenfauna des höheren Riesen- und Isergebirges. Int. ent. Zs. Guben 15 1921 pp. 60-61.

1877.—Warren, B. C. S. Considerations on the possibility that alpine species of butterflies are possessed of a remarkable latent faculty, exercised under peculiar circumstances in connection with the act of egg-laying. Ent. Record London 33 1921 pp. 1-7. [*Lepidoptera.*]

1878.—Wasmann, E. Ueber einige indische Rhysopaussinen (*Col.*, Tenebrionidae). 238, Beitrag zur Kenntnis der Myrmecophilen und Termitophilen. Tijdschr. Ent. 's-Gravenhage 64 1921 pp. 14-30 pl. 1.

1879.—Wasmann, E. Ein neuer *Articerus* aus Queensland. Ent. Blätter Berlin 17 1921 pp. 110-112. [*Coleoptera.*]

1880.—Wasmann, E. Ein neuer *Ceratoclerus* aus Tonkin. Ent. Blätter Berlin 17 1921 pp. 159-162. [*Coleoptera.*]

1881.—Waterston, J. On some Bornean insects (Agaonidae - *Hymenoptera* Chalcidoidea). Bull. ent. Res. London 12 1921 pp. 35-40.

1882.—Waterston, J. Description of the female of *Chiastopsylla godfreyi* Waterst. with further notes on the genus. Trans. ent. soc. London 1920 1921 pp. 414-416 1 text-fig. [*Siphonaptera.*]

1883.—Waterston, J. On a new African Fig Insect (*Blastophaga dyscritus* sp. n.). Trans. ent. soc. London 1920 1921 pp. 417-418 1 text-fig. [*Hymenoptera.*]

1884.—Waterston, J. Insecta, part II—*Mallophaga*. Brit. Antarctic ("Terra Nova") Expedition 1910 Zoology 3 1921 pp. 269-270.

1885.—Waterston, J. Report on parasitic *Hymenoptera* bred from pests of stored grain. Royal Soc. Reports of Grain Pests (War) Committee London No. 9 1921 pp. 8-32 figs.

1886.—Waterston, J. The louse as a menace to man. Its life-history and methods for its destruction. British Museum (Nat. Hist.) Economic Series No. 2 London 1921 (20 pp.) 4 figs. [*Anoplura*.]

1887.—Watkins, H. T. G. and Buxton, P. A. Moths of Mesopotamia and N.W. Persia. Part II. Sphinges and Bombyces. J. Bombay Nat. Hist. Soc. 28 1921 pp. 184-186. [*Lepidoptera*.]

1888.—Watson, F. E. Miscellaneous notes and records of local *Lepidoptera* and description of two new aberrations. J. New York ent. Soc. 29 3 & 4 pp. 168-173 1921. [*Lepidoptera*.]

1889.—Watt, M. N. The leaf-mining insects of New Zealand. Part ii, The genus *Nepticula*. Tr. New Zealand Inst. Wellington 53 1921 pp. 197-219 pls. xl-xliii. [*Lepidoptera*.]

1890.—Weber, L. Heinrich Bickhardt. Ent. Blätter Berlin 17 1921 pp. 1-5 portrait. [*Coleoptera*.]

1891.—Weber, L. Die Lebenserscheinungen der Käfer. Kapital vi Fortpflanzung und Brutpflege. Ent. Blätt. Berlin 17 1921 pp. 5-19 49-62 97-110. [*Coleoptera*.]

1892.—Wehrli, E. Ueber den Hybriden *Psodos alpinata* Sc. ♂ × *quadrifaria* Sulz. ♀ = *müller-rutzi* m. D. ent. Zs. Iris Dresden 34 1920 pp. 55-56 figs. [*Lepidoptera*.]

1893.—Wehrli, E. *Cidaria achromaria* Lah.-Formen. D. ent. Zs. Iris Dresden 34 1920 pp. 57-59 figs. [*Lepidoptera*.]

1894.—Weise, J. Amerikanische Hispinen. Arch. Natg. Berlin Abt. A. 87 Heft. 5 1921 pp. 263-275. [*Coleoptera*.]

1895.—Weise, J. Wissenschaftliche Ergebnisse der schwedischen entomologischen Reise des Herrn Dr. A. Roman in Amazonas 1914-1915 6. Chrysomelidae. Ark. Zool. Stockholm 14 No. 1 pp. 1-205 1921. [*Coleoptera*.]

(N-17041 j) q

1896.—Weiss, A. Sur un nouveau Pulicide *Ceratophyllus haesitatoris desideratus*, nouvelle sous-espèce. Arch. Inst. Pasteur Tunis 11 1919 pp. 24-27 1 pl. [*Siphonaptera*.]

1897.—Weiss, A. Un Pulicide (*Aphaniptère*) nouveau de l'Afrique mineure, *Archaeopsylla polymorphus* n. sp. Bull. soc. hist. nat. Alger. 11 1920 pp. 171-176 4 figs.

1898.—Weiss, H. B. *Diptera* and Fungi. Proc. Biol. Soc. Washington 34 pp. 85-88.

1899.—Weiss, H. B. Notes on the life-history of *Pachypsylla celtidigemma* Riley. Canad. Entom. Guelph 53 1921 pp. 19-21. [*Homoptera*.]

1900.—Weiss, H. B. A bibliography on fungus insects and their hosts. Ent. News Philadelphia 32 1921 pp. 45-47.

1901.—Weiss, H. B. Notes on the larval and pupal stages of *Xyloryctes satyrus* Fab. Ent. News Philadelphia 32 1921 pp. 193-198 pl. iv. [*Coleoptera*.]

1902.—Weiss, H. B. and Dickerson, E. L. Notes on Milkweed Insects in New Jersey. J. New York ent. Soc. 29 3 & 4 pp. 123-145.

1903.—Weiss, H. B. and Dickerson, E. L. *Gargara genistae* Fabr., a european membracid in New Jersey. Ent. News Philadelphia 32 1921 pp. 108-112. [*Homoptera*.]

1904.—Weiss, H. B. and Lott, R. B. Notes on *Orchestes rufipes* Lec. in New Jersey. Psyche Boston Mass. 28 1921 pp. 152-155. [*Coleoptera*.]

1905.—Weiss, H. B. and West, E. Additional Fungus Insects and their Hosts. Proc. Biol. Soc. Washington 34 1921 pp. 59-62. [*Coleoptera*.]

1906.—Weiss, H. B. and West, E. Additional Notes on Fungus Insects. Proc. Biol. Soc. Washington 34 1921 pp. 167-172 pl. i. [*Col. Dip.*, &c.]

1907.—Weiss, H. B. and West, E. Notes on the insects of the spreading dogbane, *Apocynium androsaemifolium* L., with a description of a new dogbane midge by Dr. E. P. Felt. Canad. Entom. Guelph 53 1921 pp. 146-151.

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1908.—Weld, L. H. American gallflies of the family Cynipidae producing subterranean galls on oak. Proc. U.S. nat. Mus. Washington 59 No. 2368 1921 pp. 187–246 pls. xxviii–xxxvii. [*Hymenoptera.*]

1909.—Weld, L. H. Notes on certain genera of parasitic Cynipidae proposed by Ashmead, with descriptions of genotypes. Proc. U.S. nat. Mus. Washington 59 No. 2378 1921 pp. 433–451. [*Hymenoptera.*]

1910.—Wellhouse, W. H. The Hawthorn Blossom Weevil (*Anthonomus nebulosus* Lec.). Ann. ent. Soc. Amer. Columbus Ohio 14 1921 pp. 141–144 fig. [*Coleoptera.*]

1911.—Wells, B. W. New United States Zooecidia. Psyche Boston Mass. 28 1921 pp. 35–45 pl. [*Diptera, Homoptera, Hymenoptera.*]

1912.—Wells, B. W. and Metcalf, Z. P. A new species of oak gall and its maker. Canad. Entom. Guelph 53 1921 pp. 212–213. [*Hymenoptera.*]

1913.—Wendeler, H. Ein neuer *Physetops* (Col. Staph.) und Berichtigungen zum Coleopterorum Catalogus von Junk-Schenkling Pars 57. Int. ent. Zs. Guben 14 1921 pp. 156–157.

1914.—Werner, F. Über einige neue oder seltener afrikanische Mantodeen des Musée d'Histoire Naturelle de Belgique in Brüssel. Arch. Natg. Berlin Abt. A. 81 Heft 5 1915 pp. 79–87 3 figs. [*Orthoptera.*]

1915.—Werner, F. Ueber Mantodeen aus Niederlaendisch-Indien. Treubia Buitenzorg 2 1921 pp. 125–135. [*Orthoptera.*]

West, E. vide Weiss and West.

1916.—Wheeler, W. M. Professor Emery's subgenera of the genus *Camponotus* Mayr. Psyche Boston Mass. 28 1921 pp. 16–19. [*Hymenoptera.*]

1917.—Wheeler, W. M. Chinese ants collected by Prof. C. W. Howard. Psyche Boston Mass. 28 1921 pp. 110–11 5 figs. [*Hymenoptera.*]

1918.—Wheeler, W. M. Chinese ants. Bull. Mus. Comp. Zoöl. Cambridge Mass. 64 No. 7 1921 pp. 527–547. [*Hymenoptera.*]

1919.—Wheeler, W. M. and Taylor, L. H. *Vespa arctica* Rohwer, a para-

site of *Vespa diabolica* De Saussure. Psyche Boston Mass. 28 1921 pp. 135–144 pls. vi vii. [*Hymenoptera.*]

1920.—White, P. B. Isle of Wight Disease in Hive Bees. (2) The Pathology of Isle of Wight Disease in Hive Bees. Trans. R. Soc. Edinburgh 52 1921 pp. 755–764 1 pl. [*Hymenoptera.*]

White, P. B. vide Rennie, White and Harvey.

1921.—Wichgraf. Neue afrikanische *Lepidopteren* aus der Ertischen Sammlung. Int. ent. Zs. Guben 14 1921 pp. 171–172 179–180 195–197 15 1921 pp. 19–21 93–95 116–117 157–158.

1922.—Wileman, A. E. Notes on Japanese *Lepidoptera* and their larvae: part vi. Philippine J. Sci. Manila P.I. 19 1921 pp. 209–231 2 pls.

1923.—Wileman, A. E. and South, R. New species of Noctuidae and Hypeninae from the Philippines. Entomologist London 54 1921 pp. 202–205. [*Lepidoptera.*]

1924.—Wileman, A. E. and South, R. Four new moths from the Philippines. Entomologist London 54 1921 pp. 237 & 238. [*Lepidoptera.*]

1925.—Wileman, A. E. and South, R. Seven new moths from the Philippines. Entomologist London 54 1921 pp. 273 & 274. [*Lepidoptera.*]

1926.—Wilhelmi, J. Die gemeine Stechfliege (Wadenstecher). Untersuchungen über die Biologie der *Stomoxys calcitrans* (L.). Monog. z. angew. Ent. Berlin 2 1917 110 pp. [*Diptera.*]

1927.—Wilhelmi, J. Zur Biologie der kleinen Stubenfliege *Fannia canicularis* L. Zs. angew. ent. Berlin 5 1919 pp. 261–266. [*Diptera.*]

1928.—Wilhelmi, J. Zur Überwinterung von Musciden. Zs. angew. Ent. Berlin 6 1920 pp. 296–301. [*Diptera.*]

1929.—Wilhelmi, J. Zur Frage der Übertragung der Maul- und Klauenseuche durch stechende Insekten, unter besonderer Berücksichtigung von *Stomoxys calcitrans*. Verh. Deut. Gesell. angew. Ent. Berlin 1919 pp. 156–167. [*Diptera.*]

- 1930.—Wilhelmi, J. Die hygienische Bedeutung der angewandten Entomologie. Flug. 7 Deut. Gesell. angew. ent. Berlin 1918.
- 1931.—Wilke, E. Fettkörper, Speicheldrüse und Vasa Malpighi der Blattwespenlarven. Zool. Anz. Leipzig 52 pp. 249–254 1921. [*Hymenoptera*.]
- 1932.—Wilkinson, K. Catalogue of Local *Coleoptera*. Trans. Eastbourne Nat. Hist. Soc. 8 1921 pp. 188–191.
- 1933.—Wille, J. Biologie und Bekämpfung der deutschen Schabe (*Phyllodromia germanica* L.). Monog. Deut. Gesell. angew. Ent. No. 5 1920. [*Orthoptera*.]
- 1934.—Willem, V. L'habitat et les allures du Collemboule marin *Actaetes*. Bull. Ac. Belgique Bruxelles 5 Ser. 6 1920 pp. 524–540 figs. 1–3. [*Collembola*.]
- 1935.—Williams, C. B. A blood-sucking Thrips. Entomol. London 54 1921 p. 163. [*Thysanoptera*.]
- 1936.—Williamson, E. B. Results of the University of Michigan-Williamson expedition to Colombia, 1916–1917. iv. Notes on species of the genus *Heteragrion* Selys, with descriptions of new species (*Odonata*). Occ. Pap. Mus. Zool. Univ. Michigan Ann Arbor No. 68 1919 pp. 1–66 pls. i–xii.
- 1937.—Williamson, E. B. Two days with Indiana *Odonata*. Ent. News Philadelphia 32 1921 pp. 19–23. [*Paraneuroptera*.]
- 1938.—Williamson, E. B. Two new neotropical genera of Lestinae (*Odonata*). Occ. Pap. Mus. Zool. Univ. Michigan No. 96 1921 pp. 1–9 pls. i ii. [*Paraneuroptera*.]
- 1939.—Wingelmüller, A. Bestimmungstabelle der paläarktischen Cionini nebst Beschreibungen neuer Arten. Kol. Rundschau Wien 9 1921 pp. 101–124. [*Coleoptera*.]
- Wimmer, A. vide Baudys and Wimmer.
- 1940.—Wolcott, A. B. North-American predaceous beetles of the tribe Tillini in the United States national Museum. Proc. U.S. nat. Mus. Washington 59 No. 2370 1921 pp. 264–290 pl. xliii. [*Coleoptera*.]
- 1941.—Wolff, G. Physikalisch-biologische Beobachtungen an Schmetterlingsflügeln, Vogelfedern und anderen organischen Gebilden. Biol. Centrabl. Leipzig 40 1920 pp. 248–259 4 figs. [*Lepidoptera*.]
- 1942.—Wolff, Max. Über die Pteromalinengattung *Platyterma* Walker (1834) und über eine deutsche, von C. Eckstein aus *Lophyrus pini* erzeugene, neue Art. Zs. angew. Ent. Berlin 3 1916 pp. 157–171.
- 1943.—Wolff, M. and Krausse, A. Phaenomenologie in Formeln. Zool. Anz. Leipzig 52 1921 pp. 238–249.
- 1944.—Wollman, E. Le rôle des mouches dans le transport des germes pathogènes étudié par la méthode des élevages antiseptiques. Ann. Inst. Pasteur Paris 35 1921 pp. 431–449 3 figs. [*Diptera*.]
- 1945.—Woodward, G. C. Notes on collecting butterflies at Hong Kong. Ent. Record London 33 1921 pp. 67–70. [*Lepidoptera*.]
- 1946.—Wradatsch, Dr. Eine Winterkäferbeute von 1920 und Fangart. Soc. Entomol. Stuttgart 36 1921 pp. 33–35 39–40.
- 1947.—Wright, W. S. A new *Pterophorus*. Ent. News Philadelphia 32 1921 p. 6. [*Lepidoptera*.]
- 1948.—Yamada, S. Descriptions of ten new species of *Aedes* found in Japan, with notes on the relation between some of these Mosquitoes and the larva of *Filaria bancrofti* Cobbold. Annot. Zool. Jap. Tokio 10 1921 pp. 45–81 figs. [*Diptera*.]
- 1949.—Zacher, F. Neue und wenig bekannte Pflanzenschädlinge aus unseren Kolonien. Zs. angew. Ent. Berlin 2 1915 pp. 422–426.
- 1950.—Zacher, F. Neue und wenig bekannte Pflanzenschädlinge aus unseren Kolonien. Zs. angew. Ent. Berlin 3 1916 pp. 418–425.
- 1952.—Zacher, F. Eingeschleppte Voeratschschädlinge. D. ent. Zs. Berlin 1921 pp. 288–295.
- 1951.—Zander, E. Die Temperaturverhältnisse im Bienenstock während des Winters. Zs. angew. Ent. Berlin 4 1918 pp. 25–30. [*Hymenoptera*.]

1953.—Zander, E. Die Vererbung bei der Honigbiene. Verh. Deut. Gesell. angew. Ent. Berlin 1919 pp. 138–144. [*Hymenoptera*.]

1954.—Zander, E. Die Zukunft der deutschen Bienenzucht. Flug. 2 Deuts. Gesells. angew. Ent. Berlin 1916.

1955.—Zander, E. Zeitgemässe Bienenzucht. Heft 1, Bienenwohnung und Bienenpflege, Nr. 5, 1918. Heft 2, Zucht und Pflege der Bienenkönigin Nr. 6 1919. Flug. Deut. Gesells. angew. Ent. Berlin. [*Hymenoptera*.]

1956.—Zander, E. Die Ausbildung des Geschlechtes bei der Honigbiene (*Apis mellifica* L.). Zs. angew. Ent. Berlin 3 1916 pp. 1–74. [*Hymenoptera*.]

1957.—Zander, E. Der Einfluss der Bastardierung auf die Honigbildung. Zs. angew. Ent. Berlin 5 1919 pp. 88–92. [*Hymenoptera*.]

1958.—Zander, E. Zehn Jahre Kgl. Anstalt für Bienenzucht. Zs. angew. Ent. Berlin 5 1919 pp. 84–87. [*Hymenoptera*.]

1959.—Zavattari, E. Ricerche sulla biologia dell'*Aploneura lentisci* Passerini. Acta Zool. Stockholm 2 1921 pp. 241–292 4 pls. figs. [*Aphidae*.]

1960.—Zeleny, C. A change in the hargene of *Drosophila melanogaster* involving further decrease in facet number and increase in dominance. J. Exp. Zool. Philadelphia 30 1920 pp. 293–324 9 text-figs. [*Diptera*.]

1961.—Zeleny, C. The direction and frequency of mutation in the bar-eye series of multiple allelomorphs of *Drosophila*. J. Exp. Zool. Philadelphia 34 1921 pp. 203–233 5 figs. [*Diptera*.]

1962.—Zimmermann, A. Beiträge zur Kenntnis der südamerikanischen Schwimmkäferfauna nebst 41 Neubeschreibungen. Arch. Natg. Berlin Abt. A. 87 Heft 3 1921 pp. 181–206. [*Coleoptera*.]

1963.—Zimmermann, A. Zoologische Ergebnisse zweier in den Jahren 1902 und 1904 durch die Sinaihalbinsel unternommener botanischer Studien-

reisen, Dytiscidae und Gyrinidae. Ent. Blätter Berlin 17 1921 pp. 84–91. [*Coleoptera*.]

1964.—Zimmermann, A. Eine neue Dytiscidenart aus dem Ussurigebiet. Kol. Rundschau Wien 9 1921 p. 86. [*Coleoptera*.]

1965.—Zöllner, H. *Lygris pyropata* Hb. und forma: *flavobasata* subsp. nov. [sic !]. D. ent. Zs. Iris Berlin 33 pp. 1–6 figs. 1919. [*Lepidoptera*.]

1966.—Zöllner, H. Kritische Betrachtung der Vfl-Zeichnung von *Lygris prunata*, *testata*, *populata*, *associata* und *pyropata*. D. ent. Zs. Iris Berlin 33 pp. 6–8 figs. 1919. [*Lepidoptera*.]

1967.—Zöllner, H. Beschreibung des Eies, der Raupe, Puppe und der verschiedenen Falterformen von *Rhynchagrotis* (*Agrotis*) *chardinyi* Brd. (*Lepidoptera*). D. ent. Zs. Iris Berlin 34 1921 p. 62.

1968.—Zwaluwenburg, R. H. van. *Melanotus hyslopi* n. sp. Proc. ent. Soc. Washington 23 1921 p. 210. [*Coleoptera*.]

1969.—Zweigelt, F. Der gegenwärtige Stand der Maikäferforschung. Zs. angew. Ent. Berlin 5 1919 pp. 1–33. [*Coleoptera*.]

1970.—Zweigelt, F. Der gegenwärtige Stand der Maikäferforschung Flug. 8 Deut. Gesells. angew. Ent. Berlin 1918. [*Coleoptera*.]

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Cook Is., *Lepidoptera*, POULTON, *Proc. ent. soc. London* 1920 p. 72 1921.

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Ireland, 1920, JOHNSON p. 11-13, Irish Nat. 30; HINCH, 853.

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Deal, *Melanophila*, CUMMING p. 142 Ent. Mag. 57.

Eastbourne, WILKINSON, 1932.

Firth of Forth, BEARE p. 89 Ent. Mag. 57.

Firth of Tay, CARTER p. 141 Ent. Mag. 57.

Glamorgan, TOMLIN pp. 34-36 Ent. Mag. 57.

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Guernsey, TOMLIN, Ent. Mag. 57 pp. 13 & 14.—PERKINS T.c. pp. 90 & 91.

Hawthornden, BEARE p. 89 Ent. Mag. 57.

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Diptera.—FALCOZ, 596; MERCIER, Calvados, Ann. Soc. ent. Belgique 61 pp. 162-164; PIERRE, 1385, 1386; SÉGUX, *Culicinae* 1583, 1586, 1587, TURINETTI, *Lonchaea aristella*, p. 195 Bull. Soc. ent. France 1921.

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(g) *South Europe and Mediterranean Basin.*

Coleoptera.—DEVILLE, Corsica, 443; FUENTE, 704, 705; KRAUSSE, 990, 998; MADER, Albania, 1153; MÜLLER, 1270; RAGUSA, 1436; SCHATZMAYR, *Exapion*, 1439.

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(h) *Caucasus, West and Central Asia.*

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Hymenoptera.—DODD, Java, 463; ELLIOTT, 551; ENDERLEIN, 564; GRANDI, 746; KRIEGER, 1004; ROHWER, 1492, 1493, 1495, Philippine Is. 1491; STRAND, 1693; WATERSTON, 1881.

Lepidoptera.—FRUHSTORFER, 692; JOICEY & TALBOT, 910; JURRIANSE & LINDEMANS, 920; MARTIN, 1184; PROUT, 1429; TALBOT, 1738; WILMAN & SOUTH, 1923, 1924, 1925.

Trichoptera.—NAVÁS, Philippines, 1291.

Diptera.—EDWARDS, Sarawak, 531; FELT, 609; KERTESZ, 935; KIEFFER, Philippine Is., 945; KRÖBER, 1015; RIEDEL, 1474; SCHMITZ, 1555; SWELLENGREBEL, *Culicidae*, 1726.

Hemiptera.—BERGROTH, Borneo, 166; FUNKHOUSER, Philippine Is., 708; MORRISON, Philippine Is., 1254; UICHANCO, Philippine Is., 1800.

Thysanoptera.—KARNY, 927.

Isoptera.—LIGHT, Philippine Is., 1094, 1095.

Plecoptera.—KLAPALEK, 951.

Paraneuroptera. — CAMPION, 315; MARTIN, 1189.

Orthoptera.—CARL, 319; KARNY, Philippine Is., 925; WERNER, 1915.

Aptera.—SILVESTRI, 1615.

Collembola.—HANDSCHIN, 772.

Australia and Tasmania.

Coleoptera.—CARTER, 327, 328; FERGUSON, 617, *Acantholophus*, 616; KESSEL, 936; KRIESCHE, 1005; LEA, 1071, 1072, 1073; SLOANE, *Carabidae* 1627, *Cicindela* 1628; WASMANN, 1879.

Hymenoptera. — COCKERELL, 368; CRAWLEY, 402; DODD, 461, 464; GIRAULT, 731; GRANDI, 745; HACKER, 766; KRIEGER, 1004; STRAND, 1703.

Lepidoptera. — BRYK 272, 277; TURNER, *Hypsidae*, *Anthelidae*, 1793.

Neuroptera.—ŠÁMAL, 1532.

Diptera.—ALEXANDER, 25, 37; CARTER, 326; EDWARDS, 539, Tasmania 532; HARDY, 774; HILL, 850; KERTESZ, 935; KRÖBER, 1013, 1015, 1018; MALLOCH, 1163; SURCOUF, 1720.

Hemiptera.—MYERS, 1283; POPPIUS & BERGROTH, 1410; †TILLYARD, 1764, †1766.

Thysanoptera.—KARNY, 924, 926.

Isoptera.—HILL, 852, *Coptotermes* 851.

Plecoptera.—TILLYARD, 1762, 1763, 1765, 1768.

Orthoptera.—ALEXANDER, 17; CARL, 319; SJÖSTEDT, 1619.

North America.

Insecta.—BARBER, 97; BRITTON, 257; †COCKERELL, 378; CRIDDLE, Canada, 405; STRAND, Greenland, 1673; WEISS & WEST, 1907.

Coleoptera.—BEAULIEU, 125; BEAULNE, Canada, 126; BENICK, 147; BLAISDELL, 200, 201; BLATCHLEY, 202; BORCHMANN, *Ababa*, 220; BOWDITCH, 233; DAWSON, 428; FALL, 600; FISHER, 631; JOHNSON, 902; LILJEBLAD, 1096; MARES, 1175; NICOLAY, 1309; NOTMAN, 1319; SCHAEFFER, 1538; VAN ZURALEN-VENBURG, 1968; WADE, 1866; WEISS & LOTT, 1904; WOLCOTT, 1940.

Hymenoptera.—BANKS, 92; COCKERELL, 366, 367, 370, 372; CRAWFORD, 400; CUSHMAN, 414, 415; ENDERLEIN, 564; FRISON, 689; GAHAN, 709; MACGILLIVRAY, 1148, 1149, 1150; ROHWER, 1495, 1497; VIERECK, 1848, 1849, 1851; WELD, 1098; WELLS, 1911; WELLS & METCALF, 1912; WHEELER & TAYLOR, 1919.

Lepidoptera.—BARNES & LINDSEY, 101, 102, 103, 105; BIRD, 193; BIRD & JONES, 194; BOWMAN, Alberta additions, Canad. Ent. 53 pp. 13, 211-212; BRAUN, 236, 238; BRYK, 279; DIETZ, 454; DYAR, 505, 508, 515, 521, 523; ENGLEHARDT, 566; FOX, 653; HILL, 847; LEUSSLER, Nebraska, *Gonepteryx clorinde*, Ent. News 32 p. 201; LINDSEY, Iowa, 1101; McDUNNOUGH, 1206, 1207, 1208, 1211, 1212, 1213; REVERDIN, 1469; SKINNER, 1624, 1625; STONE, 1671; STRAND, 1684; WATSON, 1888; WRIGHT, 1947.

Trichoptera.—LLOYD, 1108.

Diptera.—ALDRICH, 15, 16; ALEXANDER, 23, 35; BRIMLEY, 255; CRESSON, 403; CURRAN, 412, 413; DIETZ,

451, 452, 453; DYAR, 501, 502, 504, 509, 513; DYAR & LUDLOW, 506; ENDERLEIN, 560; FELT, 610, 611; GREENE, 752, 754; JOHANNSEN, 900; JOHNSON, 904, 905; KRÖBER, 1009, 1011, 1014, 1016, 1017, 1020; MALLOCH, 1158, 1161, 1164, 1167; MCATEE, 1202, 1203, 1204; McDUNNOUGH, 1210; TOTHILL, 1783; VAN DUZEE, 1833; VAN DUZEE, COLE & ALDRICH, 1834; WELLS, 1911.

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Plecoptera.—KLAPALEK, 951; LESTAGE, 1087.

Ephemeroptera. — McDUNNOUGH, 1209.

Paraneuroptera. — CALVERT, 306; McDUNNOUGH, Lake of bays, Canad. Ent. 53 pp. 6-8, Ottawa, T.C. p. 14; MORSE, 1251; WILLIAMSON, 1937.

Orthoptera.—CAUDELL, 333; FOX, 654; HEBARD, 796, 797; REHN, 1447.

Collembola.—MACNAMARA, 1152.

Protura.—EWING, 587, 588.

Central America.

Coleoptera. — ACHARD, 1; BERNHAUER, 179; BORCHMANN, *Stalirinae*, 218; BOWDITCH, 233; MANN, 1173; MOSER, 1260, 1262; PIC, 1372, 1373; VOSS, 1864.

Hymenoptera.—FRIESE, Costa Rica, 686; ROHWER, 1496; STRAND, *Halicinus*, 1704.

Lepidoptera. — NIEPELT, 1312; REVERDIN, 1468, 1469; SCHAUS, 1541, 1543; STRAND, 1680.

Diptera.—ALDRICH, 16; DYAR, 503, 512, 513, 514, 518, 519; DYAR & LUDLOW, 506; MALLOCH, 1168; SERRE, Costa Rica, *Culicidae* 1599.

Paraneuroptera.—RIS, 1483;

Orthoptera.—HEBARD, 799; REHN, 1448.

Antilles, including Bermudas, excluding Trinidad.

Coleoptera.—BOWDITCH, 233; LESNE, St. Domingo, 1085.

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Lepidoptera. — DYAR, Cuba, 505; RAMSDEN, 1439; SCHAUS, 1541; STRAND, 1680.

Diptera.—DYAR, Virgin Islands, 500; GREENE, Porto Rico, 754.

South America.

Insecta.—BRÈTHES, Peru, 246, 253; LIZER, Argentine, 1105; PORTER, 1413.

Coleoptera.—ACHARD, 1; AURIVILLIUS, 73; BENDERITTER, 142; BERNHAUER, 175, 178, 179; BORCHMANN, *Stalirinae*, 218; BRÈTHES, 247, 248, 252; BRUCH, 264; DENIER, 435; D'ORCHY-MONT, 1340; FLEUTIAUX, 635; HORN, *Phaeoxantha*, 865; KLEINE, 971; KNISCH, 973; MANN, 1173; MEQUIGNON, 1220; MOSER, 1260, 1261, 1262, 1263; PIC, 1372, 1373, 1376; PORTEVIN, 1418, 1419; SAMPSON, Trinidad, 1533; WEISE, *Hispinae* 1894, 1895; ZIMMERMANN, 1962.

Hymenoptera. — BISCHOFF, 196; BORCHMANN, *Othnius*, 220; BOWDITCH, 232, 233; BRÈTHES, 247, 248, 249; ENDERLEIN, 564, 565; FENTON, 613; HERBST, Chile, 819, 820, 821, 822, 823, 824, 825; KRIEGER, 1004; MONTET, 1246; PORTER, 1415; ROHWER, 1496; STRAND, 1696.

Lepidoptera.—ALMEIDA, 42; DYAR, 505, 508, 515, 521; FASZL, 601, 602, 603, 604; HALL, 770; HOPP, *Dalceridae*, 864; JONES, 911; KRUEGER, 1028; LATHY, 1069; OBERTHÜR, 1327; PROUT, 1429; REVERDIN, 1469; RILEY, 1477; RÖHRER, 1487; SCHAUS, 1541, 1542, 1543; SKINNER, 1626; STRAND, 1680, 1710.

Trichoptera.—JÖRGENSEN, Argentine 917; NAVÁS, 1291, 1294.

Neuroptera.—NAVÁS, Brazil 1289, 1291, Argentina 1293, 1294, 1298; PORTER, 1412.

Diptera.—ALDRICH, 15, 16; ALEXANDER, 29, 30, 31, 36; BECKER, *Dolichopodidae*, 128; BONNE-WEPSTER, BONNE & DYAR, 216; BONNE-WEPSTER & BONNE, 217; BRÈTHES,

245, 247, 251; DYAR, 513, 517, 518, 520, 522; ENDERLEIN, 560; FELT, 611; GARRETT, 713; HERMANN, *Mydaiidae*, *Asilidae*, 832; KRÖBER, 1013, 1014, 1015, 1016; MALLOCH, 1163; RICARDO, 1473; RIEDEL, *Tipulidae*, 1475; SACK, *Syrphidae*, 1527; SURCOUF, 1720.

Hemiptera.—BERGROTH, Chile, 166; BRÈTHES, 250; DRAKE, 480; LIZER, 1106, 1107; PENNINGTON, 1357; POPPIUS, 1409; POPPIUS & BERGROTH, 1410.

Thysanoptera. — PORTER, 1414; PRIESNER, 1427.

Psocoptera.—NAVÁS, 1294, 1296; STRAND, 1700.

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Plecoptera.—JAMIL, 896; KLAPÁLEK, 951; NAVÁS, 1291.

Ephemeroptera.—NAVÁS, Brazil 1289, 1291, 1294.

Paraneuroptera. — NAVÁS, Brazil 1289, 1291, Argentina 1293, 1294; WILLIAMSON, 1936, 1938.

Orthoptera.—CARL, 319; HEBARD, 795, 798; UVAROV, 1815.

Fossil insects of Rott (Siebengebirge) pp. 205–217, 219–230 7 plates figs., MEUNIER *Zs. D. Geol. Ges.* 67 1915.

Taxonomic units and morphological data, KUSNEZOV pp. 53–80 *Rev. Russe Ent.* 17.

The acquisition of habits by insects, ELDERING pp. 469–490 *Arch. Néerlandaises* 3 1919.

Sex and parthenogenesis in insects, CAVAZZA pp. 61–73 *Natura* 7 1916.

Parasitism in insects, PIGEOT *Bull. Soc. Ardennes* pp. 29–37 5 1898; pp. 35–41 6 1899.

The structure of wing-muscles in insects, EBNER pp. 3–32 *SitzBer. Ak. Wiss. Wein* 127 1919.

Review of MacGillivray, with criticisms and taxonomical and synonymical notes, FERRIS pp. 57–61 and 91–95 *Canad. Ent.* 53.

The makers of entomological plates in the U.S., historical, WALTON pp. 69–99 *P. ent. Soc. Washington* 23.

List of insects in fungus, WEISS *Ent. News* 32 pp. 45–47.

List of Insects associated with fungi pp. 57–62, FALCOZ *Misc. ent.* 25.

Insect life, EALAND xii + 340 pp. illustr.

CRAMPTON corrects a statement as to terminal abdominal structures of male insects; *Canad. Ent.* 53 p. 72.

A comparison of the terminal abdominal structures of insects and crustacea, CRAMPTON pp. 257–263 *pl. v Ent. News* 32.

Phylogeny, based on a study of the fore-wings, CRAMPTON pp. 97–105 and 135–140 *pl. ii Ent. News* 32.

The fungus *Cordyceps* and its hosts in New Zealand, CUNNINGHAM *Tr. N.Z. Inst.* 53 pp. 372–382 4 pls.

On some archaic insects, notes, TILLYARD pp. 525–530 *P. Hawai. ent. Soc.* 4.

REHN discusses the location of types, *Ent. News* 32 pp. 180–182.

Occurrence and structure of maxillulae in the Orders of Insects pp. 429–456 *pl. xxxi* 17 figg., EVANS *J. Linn Soc. Zool.* 34.

III.—SYSTEMATIC.

GENERAL.

The sclerites of the head, and the mouth-parts of certain immature and adult insects, pp. 65–103, 8 pls., CRAMPTON *Ann. Ent. Soc. Amer.* 14.

Comparative morphology of Insecta, Myriopoda and Crustacea pp. 340–346, CRAMPTON *Trans. ent. soc. London* 1920 1921.

Experiments on relative edibility of of Insects pp. 1–105, CARPENTER *Trans. ent. soc. London* 1921.

The “epistoma” of Schiödte, GOLOVJANKO pp. 328–330 figs. 1, 2 *Rev. Russe Ent.* 16 1917.

Origin and homologies of paraglossae, CRAMPTON pp. 84–92 *pl. Psyche* 28.

Food plants or hosts of some Fijian insects pp. 505-517, VEITCH & GREEN-wood Proc. Linn. Soc. N.S. Wales 46.

The taxonomic unit, STEPHENS pp. 41-50 Proc. Iowa Acad. Sci. 27.

Bibliography of Argentine entomology pp. 351-380, LIZER Prim. Réunion. Soc. Arg. Cienc. Nat. Buenos Aires 1919.

Notes on Spanish *Coleoptera*, FUENTE pp. 149-151 Bol. Soc. Ibérica 19 (2) 1920.

Coleoptera of Bois Lécuyer, Charleville, BESTEL pp. 57-58 Bull. Soc., Ardennes 1 1894.

Contributions to the fauna of France, DEVILLE pp. 81-93 Ann. Soc. ent. France 90.

Records of Sardinian *Coleoptera*, KRAUSSE pp. 120-121 Arch. Natg. 81 A.2. 1915.

Analytic tables of French *Coleoptera* [BARTHE] (cont.) pp. 33-64 have appeared in Misc. Ent. 25.

Coleoptera of the Government of Tauride, Crimea, PLIGINSKY pp. 346-352 Rev. Russe Ent. 16 1917.

Larvae of *Clavicornia*, with key, pp. 30-40, VERHOEFF Zool. Anz. 53.

COLEOPTERA.

Evolution of *Coleoptera*, GRIFFINI pp. 133-145 Natura 10 1919.

Copula and parental care in *Col.*, WEBER Ent. Blätt. 17 pp. 5-19, 49-62, 97-110.

Stridulation-organs classified, DUDICH Ent. Blätt. 17 pp. 136-140 and 145-155.

The nervuration of the wings, D'ORCHYMONT Ann. Soc. ent. Belgique 61 pp. 256-278 figs.

Defensive scent glands in *Coleoptera*, WADE pp. 145-149 Psyche 28.

Vergleichende Morphologie der Mundwerkzeuge der Coleopteren-Larven und Imagines pp. 69-194, VERHOEFF Zool. Jahrb. Jena Abt. f. Syst. 44 1921.

List of Laboulbéniales (fungus-parasites) found on *Coleoptera* in N. Africa, MAIRE p. 164 &c. Bull. Soc. hist. nat. Alger. 11 1920.

List of *Col.* associated with Fungi in U.S.A., WEISS & WEST Proc. Biol. Soc. Washington 34 pp. 59-62.

Col. and Fungi, WEISS & WEST Proc. Biol. Soc. Washington 34 p. 168.

Coleoptera occurring on railway tracks OLSUFJEV p. 412 Rev. Russe Ent. 16 1917.

Silesian *Coleoptera* KOLBE Ent. Mitt. 10 pp. 75 82.

List of *Coleoptera* of Canada, BEAULNE is continued in Nat. Canad. 46, 47, 48 the families Silphidae to Staphylinidae being dealt with.

CICINDELIDAE.

Cicindelidae, Indian records pp. 721-727, DOVER & RIBEIRO Rec. Ind. Mus. 22.

Cicindela clarki sp. n. N.W. Australia p. 330 figs. 1, 2, SLOANE Proc. Linn. Soc. N.S. Wales 46.—*C. illinoensis* sp. n., *repanda* var. n. *hoosieri* N. Amer. p. 310, MARES Ent. News 32.—*C. brevicollis*, *intermediolan.* n. n. for *intermedia* Kl. p. 175, *planicornis* *lettoro-vorbecki* subsp. n. p. 176 fig. *octoguttata magno-reducta* subsp. n. p. 181, *grandis interrupto-abbreviata* subsp. n., *pseudo-rusticana* sp. n. Cameroons p. 182, HORN Ent. Blatt. 17.—*C. campestris* race n. *lespesi*, BRUNIER p. 42 Miscell. ent. 25.—*C. lunulata* ab. n. *marvieri*, TAREL p. 74 T.c.—*C. hybrida*, variation in Siberia p. 79, *nitida* ab. n. *nigra* p. 83, MANDL Kol. Rundsch. 9.

Megacephala asperata occidentalis subsp. n. W. Africa p. 183, HORN Ent. Blatt. 17.

Phaeoxantha, distribution, p. 149, HORN Ent. Mitt. 10.

Prothyma 4-punctata methneri subsp. n. E. Africa, HORN Ent. Blatt. 17.

CARABIDAE.

The mouth-parts of Caraboidea, PAULY pp. 1-102, figs. 1-57 Arch. Nat. 81 A.2 1915.

Synonymy (not given below in detail) and Types of oriental *Carabidae* pp. 145-195, ANDREWES Trans. ent. soc. London 1921.

Distribution of *Carabidae* in the neighbourhood of Amiens and Caen, ANTOINE pp. 352-365 Bul. soc. linn., Amiens 21 1913.

Carabidae of the Ciscaucasian fauna, LUTSHNIK pp. 13-15, Acta Inst. Agronom. Stauropol. 1.

Carabidae from Khandackhedzy (Manchuria), LUTSHNIK pp. 95-96 Rev. Russe Ent. 16 1916.

Versuch einer Aufstellung von Gattungsbestimmungstabellen der Carabidenlarven, Keys to larvae and numerous figures, pp. 1-33, EMDEN Suppl. Ent. 8 1919.

Morphology and biology of Carabid larvae, and keys, pp. 69-194, VERHOEFF Zool. Jahrb. Jena Abt. f. Syst. 44 1921.

Analytic tables of French *Carabidae* (cont.), pp. 385-416, [BARTHE], have appeared in Misc. Ent. 25.

Notes on Russian *Pogonini*, LUTSHNIK pp. 75-76, Rev. Russe Ent. 16 1916.

Abax teriolensis sp. n. S. Tyrol p. 137, SCHAUBERGER Ent. Anz. Wien 1.

Acoptolabrus schrenckii var. n. *reductus* p. 142, *gehini* var. n. *viridis* p. 151, *cyaneo-violaceus*, *aericollis*, *katomelas*, p. 152, HAUSER Zool. Jahrb. Jena. Abt. f. Syst. 45.

Agonum sordidum subsp. n. *gridellii* p. 135, MÜLLER Wien. Ent. Zeit. 38. — *A. (Limodromus) assimile* ab. *sanguinipes* Reitter 1908 does not differ from var. *rufipes* Letzn. 1851 p. 20, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.

Amara sylvicola, *quenseli* pp. 94-96, JANSSON Ent. Tidskr. 41. — *A. teres* sp. n. New York p. 146, NOTMAN J. New York Ent. Soc. 29.

Anisodactylus poeciloides pseudoaeneus ab. nov. *excellens* E. Russia p. 4, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.

Anthia (Thermophila) babaulti sp. n. E. Africa p. 95 fig., BÉNARD Bull. Soc. ent. France 1921.

Apotomopterus polemiotes n.n. for *A. cupreus* p. 24, HAUSER Soc. Entomol. 36.

Asaphidion ganglbaueri sp. n. Asia Minor, p. 134, MÜLLER Wien. Ent. Zeit. 38.

Bembidiini, revision of Australian, keys, pp. 192-208, SLOANE Proc. Linn. Soc. N.S. Wales 46.

Bembidion, corrections to Müller's table of, pp. 28 29, *nitidulum pallicornes* subsp. n., MÜLLER Kol. Rundsch. 9. — *B. (Microserrulula* n.n. for *Serrula* Net. p. 185), (*Testidium*) *quadrifossulatum coelestriae* n.n. for *unicolor* Müller p. 190, (*Peryphus*) *gautieri* n.n. for *luridipes* Gaut. p. 200, in syst. cat. Palearct. spp. pp. 183-229, NETOLITZKY Arch. Natg. 87 Abt. A. Heft 7.

Bembidium (Peryphus) bryanti Java p. 249, *vitalisi* Laos p. 251, *B. incisum*, *kara*, p. 250, Tonkin, spp. n., ANDREWES Ent. Mag. 57.

Brachynus ganglbaueri Apflb. *advena* subsp. n., S. Tyrol, p. 139, SCHAUBERGER Ent. Anz. Wien 1.

Callistomimus sikkimensis Sikkim p. 238 fig., *subnotatus* Cambodia p. 239, *jucundus* Nilgiri Hills p. 239, fig., *venustus* Laos p. 240 fig., *virescens* Burma p. 241 fig., *belli* Bombay p. 241 fig., *dabreui* India p. 242 fig., spp. n., *modestus* varr. n. *humeralis* p. 243, *insularis* p. 244, *dux* sp. n. Burma p. 244, fig., *nair* var. n. *nilgirinus* Nilgiri Hills p. 244, *vitalisi* sp. n. Tonkin p. 246, *chhalcocephalus* and *yunnanus* identical p. 238, *acuticollis* and *yunnanus* identical p. 242, ANDREWES Proc. Zool. Soc. London 1921.

Calopterus (Pterostichus) selmanni inexpectus p. 136, *kassbergensis*, *styranus* p. 137, subsp. n. E. Alps, SCHAUBERGER Ent. Anz. Wien 1.

Calosoma inquisitor, N. Germany, remarks, on, HOLSTE, Zs. angew. Ent. 2 1915, pp. 417-421. — *C. sycophanta*, life history, habits, New England, HOLSTE pp. 413-417 T.c.

†*Carabites scoticus*, tertiary Mull. COCKERELL p. 22 Canad. Ent. 53.

Carabus, notes on Russian species, OLSUFJEV pp. 411-412 Rev. Russe Ent. 16 1917. — *C.*, natural history, KERN pp. 162-172 Ent. Blätt. 17. — *C. Die*

Damaster-Coptolabrus Gruppe der Gattung, keys, etc., pp. 1-394, plates 1-11, HAUSER Zool. Jahrb. Jena Abt. f. Syst. 45.—*C. erosus* subsp. n. *textus* p. 113, varr. n. *vestigialis* p. 114, *karagaicus* p. 115, *kukunorensis* var. n. *flagellatus* p. 117, *canaliculatus* subsp. n. *nicolaiensis* p. 120, *violaceus* var. n. *asperipennis* p. 126, Siberia, DE LAPOUGE Carab. nouv. ou mal connus, published with Misc. Ent. 25.—*C. auratus* varr. n. *bettingeri* p. 50, *brunieri* p. 53 and discussion of French races, BARTHE Misc. ent. 25.—*C. auratus*, reflex action in headless, pp. 335-336, GALANT Biol. Centralbl. 40.—*C. auratus*, larva, pp. 462-463, Lengerken, Zs. angew. Ent. 7.—*C. auratus* and larva pp. 31-113, 75 figg., Lengerken Arch. Natg. 87 Abt. A Heft 3.—*C. menetriesi*, distribution and geological conditions, SEMENOV-TIAN-SHANSKY pp. 353-360, Rev. Russe Ent. 16 1917.—*C. menetriesi*, relation to geology, SEMENOV-TIAN-SHANSKY pp. 152-153, Rev. Russe Ent. 17.—*C. sanchari* sp. n. Sikkim p. 407, *wallichi* Hope p. 409, ANDREWES Ann. Nat. Hist. 7.—*C. violaceus* var. n. *lindbergi* Finland, BURKART p. 116 Ent. Blätt. 17.

Catascopus laotinus p. 205, *saphyrinus* p. 206, Laos, *bellus* p. 207, *lissonotus* p. 208, India, *bryanti* Penang p. 209, spp. n., *punctipennis* var. n. *salvazae* p. 210, ANDREWES Ann. Soc. ent. Belgique 61.

Chlaenius fastigatus sp. n. Ceylon p. 182, ANDREWES Trans. ent. soc. London 1921.—*C. pulcher* r.n. *asper* Tonkin p. 190, ANDREWES T.c.—*C. coeruleus* ab. *leitzingeri* Lutshn. 1910 an immature individual of the sp. p. 19, *alutaceus* Gebl. belongs to subgen. *Agostenus* p. 20, *mandschuricus* Breit. 1912 same as *alutaceus* p. 20, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.

Clivina parryi Putz. 1862 synonymous with *clivinoides* Schm.-Goeb. 1846; *C. lata* Putz. 1866 a variety of *C. clivinoides*; *C. ypsilon oblitterata* Sumakov identical with *C. collaris* Herbst. p. 19, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.

Coptolabrus smaragdinus subsp. n. *paschkowensis* p. 171, *lanceolatus*, *mucdenensis* p. 186, *antungensis* p. 193, *tshiliensis* p. 213 *coreicus* p. 216, varr. n.

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Crisimus (*Tapinopterus*) *lessinicus* sp. n. E. Alps p. 126, SCHAUBERGER Ent. Anz. Wien 1.

Cymindis kricheldorfii Reit. (in litt.) p. 37, FUENTE Bol. Soc. ent. España 4. —*C. axillaris* subsp. n. *adriatica* p. 140, MÜLLER Wien. Ent. Zeit. 38.

Damaster blaptoides varr. n. *pseudooxuroides* p. 100, *multiseriatus* pp. 101, 110, *angulatus*, *subreticulatus* p. 111, HAUSER Zool. Jahrb. Jena Abt. f. Syst. 45.

Demetrias monostigma ab. n. *alata* C. Europe, p. 141, MÜLLER Wien. Ent. Zeit. 38.

Dioryche chinmunda sp. n. India p. 342, ANDREWES Rec. Ind. Mus. 22.

Duvalites islei sp. n., BARTHE France p. 399 Tabl. anal. det. *Carabidae* franco-rhénane published with Misc. Ent. 25.

Duvalius brujasi devillei subsp. n. Alpes-maritimes p. 174, FAGNIEZ Bull. Soc. ent. France 1921.

Dyschirius cumanus, *ponticus*, spp. n., Caucasus p. 21, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.

Harpalus taciturnus ab. n. *trebinjensis* p. 142, FLEISCHER Wien. Ent. Zeit. 38.—*H. hospes ciscaucasicus* subsp. n. Caucasus p. 8, *praetermissus* sp. n. E. Russia p. 8, ab. nov. *zhicharevi* p. 10, *circumpunctatus* ab. nov. *infrequens* Caucasus p. 10, —*H. (Artabas)*, Russian species, LUTSHNIK p. 11 Acta Inst. Agronom. Stauropol. 1.

†*Lebia protospiloptera* sp. n. eocene Colorado p. 35 pl. viii f. 2, COCKERELL P.U.S. Mus. 59.

Leistus rufescens var. *pulchellus* Hae-nel 1912 not distinct from var. *fuscus* Letzn. 1851 p. 19, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.

Lyperophorus (*Pterostichus*) *ziegleri extraneus* p. 127, *obirensis* p. 128, *culminicola* p. 128, subspp. n., E. Alps, SCHAUBERGER Ent. Anz. Wien 1.

Melaenus redescribed p. 184, ANDREWES Trans. ent. soc. London 1921.

Microlestes (*levipennis*) in Spain refers to *ibericus* Holdh. p. 27, FUENTE Bol. Soc. ent. España 4.

Microserrulula n.n. vide *Bembidion*.

Molops pareyssi lonae subsp. n. Albania p. 28, MÜLLER Bull. Soc. ent. ital. 51.—*M. piceus* Panz. *brevipennis* subsp. n. S. Tyrol p. 138, SCHAUBERGER Ent. Anz. Wien 1.

Morionidius charon sp. n. Tonkin p. 204, ANDREWES Ann. Soc. ent. Belgique 61.

Nebria iberica (*klinckowstroni*) and *N. salina*, DEVILLE p. 68 Bull. Soc. ent. France 1921.—*N. iberica* and *brevicollis*, distribution, DEVILLE pp. 157–160 T.c.—*N. iberica* synonymy and distribution pp. 101–102, FRENNET Bull. ent. soc. Belg. 3.—*N. (s. str.) dinniki* sp. n. Caucasus p. 17, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.—*N. livida* ab. n. *thoracica* p. 113, KROGERUS Notulae Ent. 1.—*N. (Alpaeus) kubanensis* sp. n. Caucasus p. 17, *dahli litoralis* var. *bonelliana* nom. n. for var. *bonellii* Dej. p. 19, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.

Omophron chelys p. 404, *smaragdus* p. 405; *gemma* p. 406, spp. n., India, ANDREWES Ann. Nat. Hist. 7.—*O. limbatus* var. n. *bänningeri* Pau p. 169, fig. 1, *variegatus* var. n. *heydeni* Coimbra p. 171 fig. 2, KRAUSSE Arch. Natg. 81 A.4 1915

Ophonus angusticollis sp. n. Dalmatia &c. p. 137, MÜLLER Wien. Ent. Zeit. 38.

Platypterus (*Pterostichus*) *panzeri gschwendtneri* subsp. n. E. Alps p. 135, SCHAUBERGER Ent. Anz. Wien. 1.

Platysma cupreum subsp. n. *hoeltzeri* Syria, *oblongopunctatum* subsp. n. *saturnianum* Caucasus p. 93, LUTSHNIK Rev. Russe Ent. 16 1916.—*P. (Macropoecilus) samurai* nom. n. for *prolixum*,

batesianum nom. n. for *amabile* and *opulentum*, *poppianum* nom. n. for *angusticollis*, LUTSHNIK p. 92 T.c.—*P. (Paraderus) pharao* nom. n. for *conforme*, LUTSHNIK p. 92 T.c.—*P. (Tapinopterus) extensum* subsp. *abreshense* nom. n. for *convexiusculum*, LUTSHNIK p. 92 T.c.—*P. oblongopunctatum saturnianum* Lutshn. 1916 synonym of *P. o. melanoscelis* Mars. 1880, LUTSHNIK p. 2 Acta Inst. Agronom. Stauropol 1.

Pheropsophus hispanicus Dej. description of larva pp. 34–40, EMDEN Suppl. Ent. 8 1919.

Poecilus koyi subsp. n. *goricianus* p. 136, MÜLLER Wien. Ent. Zeit 38.

Pogonoglossus truncatus sp. n. Burma p. 183, ANDREWES Trans. ent. soc. London 1921.

Pogonus cumanus sp. n. Russia, LUTSHNIK p. 76 Rev. Russe Ent. 16 1916.

Polyhirma rohani sp. n. Angola p. 534, BÉNARD Bul. Muséum Paris 1921.—*P. albinii* sp. n. E. Africa p. 37 fig., BÉNARD Bull. Soc. ent. France 1921.—*P. biscutellata* var. n. *punctata* Nyanza, p. 66 fig., BÉNARD T.c.

Pseudodichirus subgen. n. of *Anisodactylus* p. 3, LUTSHNIK Acta Inst. Agronom. Stauropol. 1.

†*Pterostichus gurnetensis* sp. n. Oligocene Isle of Wight p. 477 f. 45, COCKERELL Ann. Nat. Hist. 7.

Reicheia caucasica sp. n. p. 145, FLEISCHER Wien. Ent. Zeit. 38.

Siagona polita p. 180 Burma, *apicalis* p. 181 spp. n., ANDREWES Trans. ent. soc. London 1921.—*S. cyathodera* (= *punctulata* Bates nec Chaud.) Burma p. 409, *pygmaea* p. 410, *kulla* p. 411 India spp. n., ANDREWES Ann. Nat. Hist. 7.

Speluncarius (*Tapinopterus*) *priesneri* sp. n. E. Alps pp. 124 and 126, SCHAUBERGER Ent. Anz. Wien. 1.

Stenolophus aegaeus sp. n. Naxos p. 138, MÜLLER Wien. Ent. Zeit. 38.

Tachys banksi p. 200, *solidus* p. 201, *flavicornis* p. 202, *wilsoni*, *atridermis* p. 204, *carinulatus* p. 205, *blackburni* p. 206, spp. n. Australia, *mastersi* n.n. for *sexstriatum* Macleay p. 207, SLOANE Proc. Linn. Soc. N.S. Wales 46.

Trechus cuniculorum sp. n. France p. 93, MÉQUIGNON Bull. Soc. ent. France 1921.—*T. exaratus* subsp. n. *springeri* p. 134, *silvicola* subsp. n. *carnioliae* p. 135, MÜLLER Wien. Ent. Zeit. 38.—*T. (Duvalius) almosi* sp. n. p. 156, *elemeri* var. *macrocephalus*, *rectestriatus* varr. n. p. 159, *redenbacheri* subsp. *vidaretensis* subsp. n. p. 171, Hungary, BOKOR Ent. Mitt. 10.

Trogloorites ochsi sp. n. Alpes-maritimes p. 172, FAGNIEZ Bull. Soc. ent. France 1921.

Velinda gen. n. near *Dromius*, *lirata* sp. n. India p. 347, ANDREWES Rec. Ind. Mus. 22.

PAUSSIDAE.

Ceratoderus tonkinensis sp. n. p. 161, WASMANN Ent. Blätt. 17.

HALIPLIDAE.

Haliplidae as vegetarians, PEARCE p. 184 Ent. Mag. 57.

Haliplus subseriatus p. 181, *oblongus*, *ornatipennis* p. 182, spp. n., Argentine, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.—*H. zimmermanni* sp. n. N. Italy p. 56, figs. 1, 2, GSCHWENDTNER Ent. Anz. Wien 1.

DYTISCIDAE.

Dytiscidae, note on Belgian spp. pp. 82–83, DORSSELAER Bull. ent. soc. Belg. 3.

Agabus bipustulatus habits metamorphosis, pp. 184–194 pl., BLUNCK Ent. Blätt. 17.

Agaporomorphus gen. n. p. 202, *knischi* p. 203, *opalinus* p. 204, spp. n., Brazil, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Bidessus microscopicus, *subvittatus* p. 193, *pescheti*, *vittulipennis* p. 194, *corumbensis*, *curvilineatus* p. 195, *B. (Hemibidessus, subg. n.) conicus* (Reg. in litt.) p. 196, *bifasciatus*, *celinoides* p. 197, *B. (Bidessodes) knischi*, *obscuripennis*, *plicatus* p. 198, *subsignatus* p. 199, spp. n., Brazil, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Canthydrus octoguttatus, *uniformis*, spp. n., Brazil p. 189, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.—*C. bakeri* sp. n. Luzon p. 693, PESCHET Philip. J. Sci. 18.

Celina intacta p. 200, *conspicua* Brazil, *bruchii* Argentine p. 202, spp. n., ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Colymbetes fuscus var. n. *semirufus* Sinai p. 89, ZIMMERMANN Ent. Blätt. 17.

Copelatus instriatus, *brasiliensis* p. 204, *multistriatus* p. 205, spp. n., Brazil, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Desmopachria subnotata, *bifasciata*, *signata*, spp. n., Brazil p. 192, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Dytiscus marginalis the finer tracheae of, pp. 132–139, KÖPPE Zool. Anz. 52.—*D. marginalis* f. n. *semicostata* p. 117, REINECK D. ent. Zs. 1921.

Gaurodytes caraboides = (*merkli* Reg.), ZIMMERMANN p. 91 Ent. Blätt. 17.

Graphoderes bieneri sp. n. Ussuri, p. 86, ZIMMERMANN Kol. Rundsch. 9.

Hemibidessus subg. n. of *Bidessus* p. 196, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Hydroporus bisbiguttatus p. 1, *ampliiceps* p. 2, *obscuricornis*, *pilipes* p. 3, spp. n., N. Europe, SAHLBERG Notulae Ent. 1.—*H. pictus* ab. *fortiterpunctatus* ab. n. Holland p. 354, EVERTS Ent. Ber. Helder 5.—*H. siculus* Fiori (in litt.) p. 36, RAGUSA Bull. Soc. ent. ital. 51.

Laccophilus octolineatus, *epipteuricus*, spp. n., Brazil p. 190, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Macrovelatus bifenestratus sp. n. Brazil p. 191, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Notomicrus reticulatus (Rég. in litt.) p. 183, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Potamonectes nom. n. for *Potamodytes* Z., *schweinfurthi* sp. n. Sinai p. 87, ZIMMERMANN Ent. Blätt. 17.

Queda hydrovatooides sp. n. Brazil p. 191, ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Suphis notaticollis Argentine p. 184, *insculpturatus* Brazil p. 185, spp. n., ZIMMERMANN Arch. Natg. 87 Abt. A. Heft. 3.

Suphisellus **gen. n.** *variicollis*, *hieroglyphicus* p. 187, *rufulus*, *similis* p. 188, **spp. n.**, South America, ZIMMERMANN Arch. Natg. **87** Abt. A. Heft. 3.

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HYDROPHILIDAE.

Analytic tables of French *Hydrophilidae* pp. 209-215 (conclusion) [BARTHE] in Misc. Ent. **25**.

Anacaena moreirai p. 245 Brazil, *pescheli* Bolivia p. 247, **spp. n.**, d'ORCHYMONT Ann. Soc. ent. Belgique **61**.

Berosus (Enoplurus) subtilis p. 5, *speciosus* p. 6, *B. (Berosus) masculinus* p. 7, *elegans* p. 8, *uniformis* p. 9, *palposus* p. 10, *corumbanus* p. 11, *holdhausi* p. 12, *marquardti* p. 13, *wintersteineri* p. 14, *zimmermanni* p. 15, *fratellus*, *cognatus* p. 16, *insignis* p. 17, *consobrinus* p. 18, *egregius* p. 19, *singularis* p. 20, *nigrinus*, *vicarius* p. 22, *minimus* p. 23, **spp. n.**, *sticticus* *abb. confinis* p. 21, *aberrans* p. 22, *abb. n.* Matto Grosso, KNISCH Arch. Natg. **87** Abt. A. Heft. 6.

Coelostoma salvazai **sp. n.** Cambodia p. 8, d'ORCHYMONT Faune ent. indochine fasc. **5**.

Helochares salvazai p. 10, *vitalisi* p. 15, **spp. n.**, Cambodia, d'ORCHYMONT Faune ent. indochine fasc. **5**.

Hemiosus moreirai p. 251, *gahani* p. 253, **spp. n.**, Brazil, d'ORCHYMONT Ann. Soc. ent. Belgique **61**.

Hydraena angulicollis **sp. n.** New York p. 146, NOTMAN J. New York Ent. Soc. **29**.

Hydrochous ducalis p. 1, *secretus*, *variabilis* p. 2, *argutus* p. 3, **spp. n.**, *drakei* *ab. nigrinus* *ab. n.* p. 2, Matto Grosso, KNISCH Arch. Natg. **87** Abt. A. Heft 6.

Hydrocylus formosus pp. 101 & 103, *imperialis* pp. 101 & 105, **spp. n.**, China, KNISCH Ent. Anz. Wien **1**.

Limnebius evanescens in Britain, CHAMPION p. 38 Ent. Mag. **57**.—*L. truncatellus* read *truncatellus* p. 319, EVERTS Ent. Ber. Helder **5**.

Ochthebius strigosus p. 177, *jagthanas* p. 178, **spp. n.**, India, CHAMPION Ent. Mag. **57**.

Oosternum sahlbergi **sp. n.** Brazil p. 244, d'ORCHYMONT Ann. Soc. ent. Belgique **61**.

Paracymus attenuatus p. 248, *obliquus* p. 249, **spp. n.**, Bolivia, d'ORCHYMONT Ann. Soc. ent. Belgique **61**.

Sphaeridium key to species p. 55, MINOZZI Bull. Soc. ent. ital. **51**.

STAPHYLINIDAE.

Staphylinidae of Singapore, conclusion with keys to subfamilies, genera and species and list of species from Singapore, pp. 347-413, CAMERON Trans. Ent. Soc. London **1920** **1921**.

Corrections and additions to Eichelbaum's Catalogue of *Staphylinidae* since 1909, EICHELBAUM pp. 98-121, Arch. Natg. **81** A. 5 1915.

Aleochara wittei, *weiseri* p. 178, *glabra* p. 178, **spp. n.**, Argentine, BERNHAUER Wien. Ent. Zeit. **38**.

Aleocharinae, concluded, FENYES pp. 415-453 Genera Insectorum fasc. **173c**.

Allosthenopsis **nom. n.** for *Stenopsis* Bernh. p. 74, BERNHAUER D. ent. Zs. **1921**.

Amphibitherion **gen. n.** *demissum* **sp. n.** New York p. 155, NOTMAN J. New York Ent. Soc. **29**.

Anthobium minutum v. *sinuatocolle* var. n. Serbia p. 21, LOKAY Časopis **16**.—*A. (Eusphalerum) ophthalmicum* var. *ragusae* var. n. Bernh. (in litt.) p. 86, RAGUSA Bull. Soc. ent. ital. **51**.

Apocellus trisulcatus **sp. n.** Bolivia; p. 68, BERNHAUER D. ent. Zs. **1921**.

Astenus cyprius **sp. n.** Cyprus p. 21, LOKAY Časopis **16**.

Atheta robinsoni **sp. n.** Juan Fernandez p. 43, BERNHAUER The nat. hist. of Juan Fernandez **3** pt. 1.

Belonuchus flavocaudatus Argentine, *militaris* Brazil p. 170, *paradoxipunctatus* p. 171, *cribriceps* p. 172 Corrientes, **spp. n.**, BERNHAUER Wien. Ent. Zeit. **38**.

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Bolitochara obliqua ab. *kyselyi* ab. n. Slovakia p. 30, ROUBAL Časopis 18.

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Calodera brasiliiana p. 174 Brazil, *bisulcata*, *dilatata* p. 175, *bruchii* p. 176, Argentine, spp. n., BERNHAUER Wien. Ent. Zeit. 38.

Crematoxenus gen. n. p. 547 Aleocharini trib. n., *Crematoxeniini*, *aenigma* sp. n. Mexico with *Eciton* p. 548 figs., MANN P.U.S. Mus. 59.

Creophilopsis gen. n. p. 272 near *Tympanophorus*, *semiaeneus* sp. n. Burma p. 273, CAMERON Ent. Mag. 57.

Cryptobium ocyroides p. 180, *kumao-nense*, *fluviale* p. 181, spp. n. India, CHAMPION Ent. Mag. 57.—*C. dixipenne* sp. n. Argentine p. 103, BERNHAUER Wien. Ent. Zeit. 38.

Deliphrum crenatum in Scotland, FERGUSON pp. 99–103 Scott. Nat. 1921.

Dianous bang-haasi p. 27, *chinensis* p. 28, China, spp. n., BERNHAUER Arch. Natg. A. 81 H.8 1915.—*D. bisignatus* sp. n. India p. 270, CAMERON Ent. Mag. 57.—*D. obliquenotatus*, *gracilipes*, p. 183, *bifoveifrons*, *subtortuosus* p. 201, spp. n., India, CHAMPION T.c.

Dinarda dentata ravasini subsp. n. Karst p. 87, GRIDELLI Kol. Rundsch. 9.

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Drepanopora weiseri sp. n. Argentine p. 174, BERNHAUER Wien. Ent. Zeit. 38.

Ecitophya consecta sp. n. Brazil p. 550 fig., MANN P. U.S. Mus. 59.

Ectolabus piliventris sp. n. Siberia p. 83, RAMBOUSEK Časopis 18.

Eleusis marginicollis sp. n. S. Amer. p. 65, BERNHAUER D. ent. Zs. 1921.

Eucibdelus quadricollis sp. n. Kiangsi p. 32, BERNHAUER Arch. Natg. 81 Abt. A Hft. 8 1915.

Falagria myrmidon Fauv. (in. litt.) sp. n. p. 88, RAGUSA Bull. Soc. ent. Ital. 51.

Gampsonycha paradoxa sp. n. Argentine p. 177, BERNHAUER Wien. Ent. Zeit. 38.

Gnathymenus bicolor sp. n. Bolivia p. 71, BERNHAUER D. ent. Zs. 1921.

Gnypeta argentina sp. n. Argentine p. 174, BERNHAUER Wien. Ent. Zeit. 38.

Goërius olens ab. n. *aurulentus* p. 71 LOKAY Časopis 18.

Gyrophypnus pallipennis sp. n. New York p. 153, NOTMAN J. New York Ent. Soc. 29.

Hesperus bruchi sp. n. Argentine p. 169, BERNHAUER Wien. Ent. Zeit. 38.

Hetairotermes n. n. for *Termophila* Lea p. 357, CAMERON Trans. ent. soc. London 1920 1921.

Heterothops fulvipennis p. 172, *subterranea* p. 173 Argentine, spp. n., BERNHAUER Wien Ent. Zeit. 38.

Holotrochus strigipennis p. 68, *glabrivertris* p. 69, spp. n. Bolivia, BERNHAUER D. ent. Zs. 1921.

Homalium variipenne sp. n. Macquarie I. p. 30 figs. 11, 12, LEA Sci. Rep. Austr. Ant. Exp. 1911–14 Ser. C 5 pt. 8 1920.

Homoëusa sibirica sp. n. Siberia p. 83, RAMBOUSEK Časopis 18.

Hydrosmelecta torrida, *tincta* spp. n., New York p. 156, NOTMAN J. New York Ent. Soc. 29.

Hypocyptus laeticornis sp. n. Bolivia p. 76, BERNHAUER D. ent. Zs. 1921.

Jureckia gen. n. pp. 16 19, *paradoxa* sp. n. Russia (in *Spermophilus burrows*) pp. 17, 19, fig., RAMBOUSEK Časopis 17.

Lathrobium myrmecophilum sp. n. Argentine p. 103, BERNHAUER Wien Ent. Zeit. 38.—*L. semicaeruleum* sp. n. India p. 271, CAMERON Ent. Mag. 57.—*L. lintneri* sp. n. New York p. 151, NOTMAN J. New York Ent. Soc. 29.

Lauella gen. n. *vitiensis* sp. n. Fiji p. 54, MANN Psyche 28.

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Lypophemus nom. n. for *Polyphemus* Bernh. p. 74, BERNHAUER D. ent. Zs. 1921.

Lypophemus Bern. = *Polyphematiana* Strand p. 180, STRAND D. ent. Zs. 1921.

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Neobisnius semirufus, fraternus, spp. n., p. 105, BERNHAUER Wien. Ent. Zeit. 38.

Ocaleomorpha gen. n. *lacoï* sp. n. Slovakia p. 114, FLEISCHER Wien. Ent. Zeit. 38.—*O. lacoï* Fleisch. = *Apocellus sphaericollis* Say, p. 181, FLEISCHER Wien. Ent. Zeit. 38.

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Orphnebius flaviventris sp. n. India p. 179, CHAMPION Ent. Mag. 57.

Oxypoda barrosi sp. n. Chili p. 169, BRÉTHES Rev. Chil. Hist. Nat. 22.

Oxytelus murecarius sp. n. Argentine p. 101, BERNHAUER Wien. Ent. Zeit. 38.

Paderus in C. Europe pp. 252–257, NETOLITZKY Zs. angew. Ent. 5 1919.—*P. socius* p. 29, *densipennis* p. 30 China, spp. n. BERNHAUER Arch. Natg. A 81 H. 8 1915.—*P. baeri* sp. n. Peru p. 72, BERNHAUER D. ent. Zs. 1921.

Palaminus apicatus p. 69, *thiemi* p. 70, *columbinus* p. 71, Columbia, spp. n., BERNHAUER D. ent. Zs. 1921.

Pammegus andrewesi sp. n. India p. 271, CAMERON Ent. Mag. 57.

Paralispinus nom. n. for *Ancaeus* Fauv. p. 67, BERNHAUER D. ent. Zs. 1921.

Philonthus kiautschauensis, chinensis, p. 30, Kiautschau, spp. n., BERNHAUER Arch. Natg. A 81 H. 8 1915.—*P. speculum* sp. n. Transsylvania p. 24, *astutus* ab. *haemopterus* ab. n. Buchara p. 25, LOKAY Časopis 16.—*P. speculipennis* sp. n. Columbia p. 75, BERNHAUER D. ent. Zs. 1921.—*P. cribriceps* p. 105 Brazil, *weiserianus* p. 106, *aluticollis, jujuyensis*, p. 107, *nidicola* p. 108, *weiseri* Argentine, spp. n., BERNHAUER Wien. Ent. Zeit. 38.

Phyllodrepa linearis in Britain, JOY p. 142 Ent. Mag. 57.

Physetops ahrendti sp. n. Jerusalem p. 156, WENDELER Int. ent. Zs. 14.

Piestus strigipennis sp. n. Bolivia p. 65, BERNHAUER D. ent. Zs. 1921.

Placusa intermedia sp. n. India p. 724, CAMERON Ent. Mag. 57.

Platystethus laeiscollis sp. n. Japan p. 21, LOKAY Časopis 16.

Polyphematiana nom. n. for *Polyphemus* Bernhauer p. 122, STRAND Arch. Natg. 80 A. 8 1915.

Pseudocryptobium nom. n. for *Lätöna*, Guér. p. 74, BERNHAUER D. ent. Zs. 1921.

Quedius cinctus ab. n. *lividipennis*, *cinctus* ab. n. *arabs, alpestris* ab. n. *spurius* p. 71, LOKAY Časopis 18.—*Q. kiangsiensis* sp. n. p. 32 Kiangsi, BERNHAUER Arch. Natg. 81 Abt. A Hft. 8 1915.—*Q. (Raphirus) rugosus* sp. n. Bengal p. 273, CAMERON Ent. Mag. 57.

Schatzmayria is subg. of *Scimbalium*, synonymy of the species, GRIDELLI p. 87 Col. Rundsch. 9.

Scopaeoma pallida sp. n. New York p. 152, NOTMAN J. New York Ent. Soc. 29.

Scytalinus bruchi sp. n. Argentine p. 104, BERNHAUER Wien. Ent. Zeit. 38.

Silusa (?) aliena sp. n. Kiautschau p. 33, BERNHAUER Arch. Natg. 81 Abt. A Hft. 8 1915.

Solierius nom. n. for *Physognathus* Solier p. 68, BERNHAUER D. ent. Zs. 1921.

Staphylinus prasinivariegatus sp. n. Columbia p. 75, BERNHAUER D. ent.

Zs. 1921.—*S. (Platydracus) imperatorius*. *S. (Parocypus) kiautschauensis*, spp. n., China, BERNHAUER Arch. Natg. Abt. A 81 H. 8 1915.

Stenus, nomenclatural, pp. 191–194, BENICK Ent. Mitt. 10.—*S.*, gynarchy, BENICK pp. 29–34 Ent. Blätt. 17.—*S. amplificatus* sp. n. Kenai, BENICK p. 114 Ent. Blätt. 17.—*S. (s. str.) calliceps* p. 28, *paradoxus* p. 29, spp. n., China, BERNHAUER Arch. Natg. Abt. A. 81 H. 8 1915.—*S. argentinus* p. 101, *semi-marginatus* p. 102, spp. n., Argentine, BERNHAUER Wien. Ent. Zeit. 38.—*S. subdepressus*, CHAMPION p. 31 Ent. Mag. 57.—*S. jureceki* sp. n. Siberia p. 82, RAMBOUSEK Časopis 18.—*S. (Hemistenus) atlantis* sp. n. Marocco p. 25, PEYERIMHOFF Bull. Soc. ent. France 1921.

Tachinus rubricollis sp. n. Siberia, p. 82, RAMBOUSEK Časopis 18.

Thiasophila parvula sp. n. New York p. 157, NOTMAN J. New York Ent. Soc. 29.

Thinobius amphibius, tardus, p. 149, *grandicollis* p. 150, spp. n., New York, NOTMAN J. New York Ent. Soc. 29.

Thinocharis (Sciiocharis) haeneli p. 35, *brasiliensis, boleti, walteri, klinischi*, p. 36, *columbina, paraguayana*, p. 37, *emarginata, subnitida, subopaca, nitens*, p. 38, *boopina* p. 39, spp. n., Amer. mer., BERNHAUER Ent. Blätt. 17.

Thinophilus caseyi, apicicornis, spp. n., New York, p. 150, NOTMAN J. New York Ent. Soc. 29.

Tinotus lateralis sp. n. New York p. 154, NOTMAN J. New York Ent. Soc. 29.

Tolmerus funestus sp. n. Kiautschau p. 31, BERNHAUER Arch. Natg. 81 Abt. A Heft 8 1915.

Trogophloeus skottsbergi sp. n. Juan Fernandez p. 41 text fig., BERNHAUER The nat. hist. of Juan Fernandez 3 pt. 1.

Wasmannotherium nom. n. for *Xenoccephalus* Wasm. p. 77, BERNHAUER D. ent. Zs. 1921.

Xantholinus (Metacyclinus) christophi sp. n. Amur p. 23, LOKAY Časopis 16.

Zyras (Myromoezia) ragusae Bernh. (in litt.) p. 88, RAGUSA Bull. Soc. ent. ital. 51.—*Z. fulgidus* var. n. *maculipennis* p. 87, GRIDELLI Kol. Rundsch. 9.

PSELAPHIDAE.

Articerus tridens sp. n. Queensland p. 110 fig., WASMANN Ent. Blätt. 17.

Euplectus eichleri sp. n. Caucasus p. 145, FLEISCHER Wien. Ent. Zeit. 38.

Fustiger clavipilis sp. n. Honduras p. 551 fig., MANN P.U.S. Mus. 59.

Plectophloeus, literature, p. 180, REITTER Wien. Ent. Zeit. 38.

Trimium brevicorne v. *bifoveolatum* var. n. Bohemia p. 20, LOKAY Časopis 16.—*T. brevicorne breiti* subsp. n. Servia p. 34, *b. lokayi* subsp. n. Italy p. 35, *T. zoufali* subsp. n. *holdhausi* Italy p. 37, BLATTNÝ Kol. Rundsch. 9.

SCYDMAENIDAE.

Neuraphes theryi sp. n. N. Africa, p. 26, PEYERIMHOFF Bull. Soc. ent. France 1921.—*N. carinatus* Muls. male p. 72, LOKAY Časopis 18.—*N. talparum* sp. n. Bohemia, in moles' nests p. 1, LOKAY Časopis 17.—*N. talparum* sp. n. Mark Brandenburg p. 3 fig. 2, NERESHEIMER & WAGNER Ent. Mitt. 10.

Stenichnus carpathicus sp. n. p. 73. LOKAY Časopis 18.—*S. damryi wolffi* var. n. Sardinia p. 109 figg., KRAUSSE Arch. Natg. 81 Abt. A Heft 11.

SILPHIDAE.

Key to genera of Silphini, PORTEVIN p. 537 Bul. Muséum Paris 1921.

BARTHE continues the *Liodidae* of France. Miscell. ent. 25 pp. 33–64 sep. pag.

Anemadus castaneus sp. n. Caucasus p. 30, ROUBAL Časopis 18.

Cainosternum gen. n. *imbricatum* sp. n. New York p. 148, NOTMAN J. New York Ent. Soc. 29.

Chrysosilpha gen. n. p. 538, PORTEVIN Bul. Muséum Paris 1921.

Dissochaetus parallelus p. 535, *calcaratus* p. 536, spp. n., S. America, PORTEVIN Bul. Muséum Paris 1921.

Hydnobius punctatissimus Steph. distinct p. 6, NERESHEIMER & WAGNER Ent. Mitt. 10.

Hyponecrodes revised, *opacus* sp. n. Amer. mer. p. 83, *erythrurus* var. n. *pygialis* and *melancholicus* p. 83, *discicollis* var. n. *discretus* p. 84, PORTEVIN Miscell. ent. 25.

Liodes cyrtusina sp. n. Galicia p. 30, ROUBAL Casopis 18.—*L. (Parahyd-nobius) bjelasnicensis* sp. n. Bosnia, *badia* var. n. *pribamica* p. 135, ROUBAL Ent. Blätt. 17.

Necrophorus, species of in Government of Orel, BELJAEV p. 409 Rev. Russe Ent. 16 1917.

Paranecrodes gen. n. for *Silpha biguttata* Phil., PORTEVIN p. 81 Miscell. Ent. 25.

Phosphuga atrata, Lebens- und Entwicklungsgeschichte sowie Regeneration pp. 41–116, VERHOEFF Suppl. Ent. 8 1919.

Ptomaphagus chendae sp. n. Istria p. 180, MÜLLER Wien. Ent. Zeit. 38.—*P. angusticornis* sp. n. Java, p. 536, PORTEVIN Bul. Muséum Paris 1921.

Silpha obscura, Lebens- und Entwicklungsgeschichte sowie Regeneration pp. 41–116, VERHOEFF Suppl. Ent. 8 1919.

Sophrochaeta mihoki sp. n. Hungary p. 110, BOKOR Ent. Mitt. 10.

TRICHOPTERYGIDAE.

Ptenidium simplicicollis sp. n. New York p. 158, NOTMAN J. New York Ent. Soc. 29.

SCAPHIDIIDAE.

Ascaphium tonkinense sp. n. p. 93, ACHARD Bull. Soc. ent. France 1921.

Scaphidium subdepressum, *rufofemoratum*, spp. n., Sumatra p. 5, PIC MÉL. 33.

Scaphosoma rufomaculatum sp. n. Sumatra p. 5, PIC MÉL. 33.

Scutotoxidium atripenne sp. n. Sumatra p. 5, PIC MÉL. 33.

HISTERIDAE.

Catalogue of *Histeridae* of Indochina pp. 13–98, keys, DESBORDES Faune ent. Indochine fasc. 1.

(N-17041 j) q

Histeridae, African, with keys to subfamilies, etc., pp. 43–208, BICKHARDT Arch. Natg. 87 Abt. A Heft. 6.

Histeridae of the Government of Petrograd, REICHARDT Faunae-Petro-politanae Catalogus 2 No. 4.

Acritus methneri E. Africa pp. 101, 102, *apicestrigosus* Natal pp. 101, 103, spp. n., BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Anaglymma salvazai sp. n. Tonkin p. 84, DESBORDES Faune ent. indochine fasc. 1.

Anapleus setosellus sp. n. E. Africa p. 94 figs. 9 10, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Atribalus subgen. n. vide *Tribalus*.

Caenolister gen. n. *Platysomini* pp. 173, 200 *rectisternus* sp. n. N.W. Cameroons p. 200, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Carcinops salome sp. n. Abyssinia pp. 150, 151, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Chronus madurensis sp. n. India p. 50, DESBORDES Faune ent. indochine fasc. 1.

Cylindrolister gen. n. *Platysomini* pp. 172, 180, type *Platysoma quadricollis* Lew. p. 187, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Diplostix gen. n. *Dendrophilinae* pp. 147, 152, type *Carcinops togoensis* Lew., BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Epiechinus kuntzeni Span. Guinea, Cameroons, pp. 82, 85, *rappi* Cameroons pp. 82, 88 fig. 8, spp. n., BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Epierus krujanensis sp. n. Albania p. 181, MADER Wien. Ent. Zeit. 38.

Eutribalus subgen. n. vide *Tribalus*.

Eutriptus usambaricus sp. n. E. Africa p. 155, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Hister barkeri sp. n. Natal p. 135, DESBORDES Bull. Soc. ent. France 1921.—*H. apicelaevis* p. 71, *borneensis* p. 72, spp. n., Tonkin, DESBORDES Faune ent. indochine, fasc. 1.—*H. purpurascens* var. n. *strioliger* Russia p. 24, REICHARDT Faunae Petropolitanae Catalogus 2 No. 4.

Hololepta liebmanni sp. n. Congo pp. 47, 50, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Hypocacculus braunsi Cape pp. 124, 125 figs. 11-15, *aurosus* pp. 124, 129, *pavianus* pp. 125, 131 E. Africa spp. n., BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Liopygus indosinensis p. 27, *subsuturalis* p. 28 spp. n. Tonkin, DESBORDES Faune ent. indochine fasc. 1.

Nicotikis larnaudei sp. n. Siam p. 57, DESBORDES Faune ent. indochine fasc. 1.

Pachycaerus lameyi sp. n. Tonkin p. 51, DESBORDES Faune ent. indochine fasc. 1.

Pachylopus fochi sp. n. Algeria p. 191, AUZAT Bull. Soc. ent. France 1921.

Paromalus pygostriatus sp. n. Tonkin p. 83, DESBORDES Faune ent. indochine fasc. 1.

Placodes elongatus sp. n. Span. Guinea pp. 201, 202, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Platylister friederichsi sp. n. Madagascar p. 199, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Platysoma gibbosum p. 32, *bonifacyi* p. 34, *vitalisi* p. 48, spp. n., Tonkin, DESBORDES Faune ent. indochine fasc. 1.

Pygocoelis tuberculifrons Madagascar pp. 60, 62, *dissimilis* Cameroons pp. 61, 63, *gracilis* E. Africa pp. 61, 64, spp. n., BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

Saprinus aeneus v. *klickai* var. n. Bohemia p. 20, LOKAY Časopis 16.

Styphrus peyerimhoffi sp. n. Algeria p. 296 figs., CHOBOUT Bull. Soc. ent. France 1921.

Teretrius convexisternus sp. n. Sudan pp. 70, 74, BICKHARDT Arch. Natg. Abt. A Heft 6.

Tribalus (*Atribalus* subgen. n. type *mixtus* Mars. p. 164) (*Tribalus*) *impresibasis* sp. n. Abyssinia pp. 165, 166 (*Eutribalus* subgen. n. type *agrestis* Mars. pp. 164, 168) *eggersi* sp. n. E. Africa pp. 168, 169, BICKHARDT Arch. Natg. 87 Abt. A Heft 6.

NITIDULIDAE.

Ethinodes variabile sp. n. Queensland p. 187, LEA Mem. Queensland Mus. 7.

Brachyleptus algericus, habits, PEYERIMHOFF pp. 281-285 figs. Bull. Soc. ent. France 1921.

Cateretes pedicularis ab. *sumavicus* ab. n. Bohemia p. 31, ROUBAL Časopis 18.

Carpophilus suturalis sp. n. Queensland p. 186, LEA Mem. Queensland Mus. 7.

Circopes vagans p. 185, *castaneus* p. 186, spp. n. Australia, LEA Mem. Queensland Mus. 7.

Cychramus picticollis p. 182, *inconstans* p. 183, spp. n., Australia, LEA Mem. Queensland Mus. 7.

Glischrochilus 4-pustulatus ab. n. *bistigma*, HELLEN Notulae. Ent. 1 p. 44.

Gymnocychramus gen. n. p. 184, *politus* sp. n. p. 185 Australia, LEA Mem. Queensland Mus. 7.

Meligethes aeneus, biology, pp. 270-295, BURKHARDT und LINGERKEN Zs. angew. Ent. 6 1920.

Rhizophagus depressus ab. *obscuripennis*, *picipes* ab. *bifoveolata* abb. n. Holland p. 304, EVERTS Ent. Ber. Helder 5.

MONOTOMIDAE.

Thione australis, *nigra*, spp. n., Queensland p. 25, KESSEL Arch. Natg. Abt. A Heft 6.

TROGOSITIDAE.

Phycosecis hilli sp. n. Queensland p. 188, LEA Mem. Queensland Mus. 7.

CUCUJIDAE.

Ancistria (*Obancistria*) *bakeri* sp. n. Borneo p. 32, KESSEL Arch. Natg. 87 Abt. A Heft 6.

Brontophloeus subgen. n. vide *Laemophloeus*.

Cathartoides subg. n. of *Silvanus*, *africanus* sp. n. Cameroons p. 27, KESSEL Arch. Natg. 87 Abt. A Heft 6.

Fractophloeus subgen. n. vide *Laemophloeus*.

Laemophloeus Brontophloeus, *Passandrophloeus*, *Fractophloeus*, *Truncatophloeus*, *Sinuatophloeus* subgg. n. p. 28, L. (*Truncatophloeus*) *insularis* Samoa p. 29 (*Sinuatophloeus*) *felix* Queensland, *ignotus* Samoa p. 30, *juvencus* (with var. n. *nigricans*) Queensland p. 31, spp. n., KESSEL Arch. Natg. 87 Abt. A Heft 6.

Passandridae, systematic position, pp. 33-35, KESSEL Arch. Natg. 87 Abt. A Heft 6.

Passandrophloeus subgen. n. vide *Laemophloeus*.

Sinuatophloeus subgen. n. vide *Laemophloeus*.

Truncatophloeus subgen. n. vide *Laemophloeus*.

CRYPTOPHAGIDAE.

Anathilopus gen. n., *theryi* sp. n. Algeria, FALCOZ p. 43 fig. Bull. Soc. ent. France 1921.

Antherophagus nigricornis ab. *fasciatus* ab. n. Bohemia p. 20, LOKAY Časopis 16.

Atomaria parviceps sp. n. New York p. 158, NOTMAN J. New York Ent. Soc. 29.—*A. impressa* ab. *vanderwieli* ab. n. Holland p. 340, EVERTS Ent. Ber. Helder 5.

Cryptophagus peyerimhoffi sp. n. Morocco p. 42, FALCOZ Bull. Soc. ent. France 1921.—*C. cellaroides* sp. n. Armenia p. 90, REITTER Wien. Ent. Zeit. 38.

Henoticus californicus Mann. = (*germanicus* Reitt.), CHAMPION p. 12 Ent. Mag. 57.

COLYDIIDAE.

Pycnomerus (Penthelispa) doelloi sp. n. Buenos Aires p. 70, BRÉTHES Bull. Soc. ent. France 1921.

DERMESTIDAE.

Dermestidae, biology, pp. 348-351, RUSCHKAMP Ent. Ber. Helder 5.

Anthrenus museorum, biology, pp. 375-376, TEICHMANN Zs. angew. Ent. 4 1918.

Eucnecerus anthrenoides, habits, SWEZEY p. 487 Proc. Hawai. ent. Soc. 4.

(N-17041 j) q

Trogoderma granarium sp. n. Holland p. 610, EVERTS Col. Neerland. 's Gravenhage 1 1899.

BYRRHIDAE.

Aspidiphorus orbiculatus ab. n. *laevistriatus* p. 142, FLEISCHER Wien. Ent. Zeit. 38.

Chelonarium luteopilosum sp. n. Sumatra p. 4, PIC Mém. 33.—*C. murinum*, *grouvellei*, *pici*, *maulazi*, spp. n., Amer. mer. p. 161, *bipunctatum* Chevr. = (*nigromaculatum* Pic) p. 162, MEQUIGNON Bull. Soc. ent. France 1921.

Simplocaria frigida sp. n. Lapland p. 12, KRÖGERUS Notulæ Ent. 1.

HETEROCERIDAE.

Heterocerus dayremi sp. n. Sahara p. 231 fig., PEYERIMHOFF Bull. Soc. ent. France 1921.

LUCANIDAE.

Variation in males of *Lucanidae*, GRIFFINI pp. 80-123 2 figs. Natura 9 1918; pp. 13-46 4 figs. Natura 10 1919.

Lissapterus hopsoni sp. n. N.S. Wales p. 302 ff. 3, 4, CARTER Proc. Linn. Soc. N.S. Wales 46.

Odontolabis lowei, variations in colour, size and structure figured, GRIFFINI pp. 133 135 Natura 5 1914.

Rhyssonotus politus sp. n. N.W. Wales p. 301, ff. 1, 2, CARTER Proc. Linn. Soc. N.S. Wales 46.

SCARABAEIDAE.

Cetoniini.

Callynomes pilifer sp. n. India p. 186, MOSER Ent. Zeitung 82.

Chaetodermina n. n. for *Chaetoderma* Moser p. 195, HELLER Ent. Mitt. 10.

Coenochilus strigatus p. 279, *carinipes* p. 280, spp. n., Congo, BOURGOIN Bul. Muséum Paris 1921.

Dasyvalgus obscurus sp. n. Java p. 186, MOSER Ent. Zeitung 82.

Gemuchus ruficornis sp. n. Congo p. 283, BOURGOIN Bul. Muséum Paris 1921.

Glaucocelis sjöstedti sp. n. Matabele p. 185, MOSER Ent. Zeitung 82.

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Glycosia bakeri sp. n. Mindanao p. 184, MOSER Ent. Zeitung 82.

Gymnetis zikani, variabilis, p. 183, spp. n., S. Amer., MOSER Ent. Zeitung 82.

Hybothoracella n. n. for *Hybothorax* Kraatz nec Ratzbg. p. 174, STRAND Int. ent. Zs. 14.

Hypselogenia nyassica sp. n. Africa p. 183, MOSER Ent. Zeitung 82.

Ischnovalgus sulcicollis sp. n. Africa, p. 187, MOSER Ent. Zeitung 82.

Leucocelis uluguruensis sp. n. Africa p. 185, MOSER Ent. Zeitung 82.

Lissogenius simplicipes sp. n. Congo p. 284, BOURGOIN Bul. Muséum Paris 1921.

Mecaspidium gen. n. *cinereus* sp. n. Congo p. 282, BOURGOIN Bul. Muséum Paris 1921.

Oedipovalgus burgeoni sp. n. Congo p. 89, BOURGOIN Bul. Muséum Paris 1921.

Oreovalgus sandakanus sp. n. Borneo, p. 187, MOSER Ent. Zeitung 82.

Pachnoda sjöstedti p. 184, *flavolimbata*, p. 185, spp. n., Congo, MOSER Ent. Zeitung 82.

Phymatopteryx burgeoni sp. n. Congo p. 84, BOURGOIN Bul. Muséum Paris 1921.

Pileotrichius gen. n. *burgeoni* p. 334, *austerus* p. 335, spp. n., Congo, BOURGOIN Bul. Muséum Paris 1921.

Pseudastoxenus gen. n. *favosus, burgeoni*, spp. n. Congo p. 281, BOURGOIN Bul. Muséum Paris 1921.

Spilophorus cervinus sp. n. Congo p. 84, BOURGOIN Bul. Muséum Paris 1921.

Synistovalgus elongatus p. 85, *palliatu*s p. 86, *sulphureus, parallelcollis*, p. 87, *squamipes, nitidus*, p. 88, *minutissimus* p. 89, *elegans* p. 336, spp. n., Congo, BOURGOIN Bul. Muséum Paris 1921.

Coprini.

Catalogue of *Scarabaeidae* Laparoticti of Indochina, pp. 3-76, keys, BOUCOMONT & GILLET Faune. ent. indochine fasc. 4.

Aphodius, synonymy and types of Motschulsky's species, pp. 192-193.—*A. (Pleuraphodius) gnomus* Senegal p. 193, (*Alocoderus*) *imitator* Borneo p. 194, (*Plagiogonus*) *bortkevitchi* Manchuria p. 195, (*Adeloparius*) *le-moulti* French Congo p. 196, (? *Acrossidius*) *kozlovi* Mongolia p. 197, (*Acrossidius*) *delavayi* Yunnan p. 199, (*Trichaphodius*) *kachovskyi* Abyssinia p. 200, (*Orodalus*) *himalayanus* Himalaya p. 201, (? *Mendidius*) *osiris* Egypt p. 201, spp. n., KOZHANTSHIKOV Rev. Russe Ent. 16 1917.—(*Amidorus*) *alagoezi* pp. 21, 63, (*Nimbis*) *cartalinus* pp. 24, 66, (*Agrilinus*) *satunini*, spp. n., Caucasus pp. 15, 18, OLSOUFIEV Mém. Mus. Caucase Ser. A No. 7 1918.—*A. punctatissimus, vitalisi* (and var. n. *cordieri* p. 63), spp. n., Tonkin, BOUCOMONT Faune ent. indochine fasc. 4.

Ataenius dentatus sp. n. Andaman Is. p. 207, KOZHANTSHIKOV Rev. Russe Ent. 16 1917.

Ceratophyus fischeri, note p. 24, EMILIO & RASSETTI Bull. Soc. ent. ital. 51.

Drepanocerus marshalli Rhodesia p. 203, *striatus* Zanzibar p. 205, spp. n., BOUCOMONT Rev. zool. Afric. 9.

Drepanoplatynus gen. n. *Oniticellini, gilleti* sp. n. Congo, BOUCOMONT p. 206 Rev. zool. Afric. 9.

Geotrypes stercorarius subsp. n. *olgae* pp. 34, 73, var. n. *montanus* pp. 34, 74, *zaitzevi* sp. n. pp. 35, 75, Caucasus, OLSOUFIEV Mém. Mus. Caucase Ser. A No. 7 1918.

Odontolytes gen. n. of *Coprini* p. 205, *andamanensis* sp. n. Andaman Is. p. 206, KOZHANTSHIKOV Rev. Russe Ent. 16 1917.

Oniticellus panthera p. 211, *aterrimus* p. 215, *arrowi* p. 216, spp. n., Africa, BOUCOMONT Rev. zool. Afric. 9.—*O. fairmairei* sp. n. China p. 27, BOUCOMONT Faune ent. indochine fasc. 4.

Onthophagus abacus p. 44, *caesariatus* p. 45, spp. n., India, *liputianus* var. n. *carbunculus* p. 46, BOUCOMONT Bull. Soc. ent. France 1921.—*O. zebu* Philippines, *verecundus* Borneo, p. 89, *inermivertex* p. 90, *rasilis* Philippines, *cyobioides* Borneo, p. 91, spp. n., *calcaratus* ♀, *pastillatus* ♀, p. 92, BOUCOMONT T.c.—*O. cognatus, dapaucensis*, p. 30, *indosinicus* p. 32,

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Pancius bakeri sp. n. Borneo p. 88, BOUCOMONT Bull. Soc. ent. France 1921.

Proagoderus kolbei sp. n. E. Africa p. 170, MARCUS D. ent. Zs. 1921.

Rhyssemus (Trichiorhyssemus) cloueti Senegambia p. 203, (*Rhyssemus*) *osmanlis* Asia Minor p. 204, spp. n., KOZHANTSHIKOV Rev. Russe Ent. 16 1917.—*R. (T.) longetarsalis* sp. n. Nigeria p. 75, BÉNARD Bul. Muséum Paris 1921.

Dynastini.

Erioscelis sobrina sp. n. Venezuela p. 108, HÖHNE D. ent. Zs. 1921.

Oryctes rhinoceros, morphology, biometrics, distribution, pp. 3–74, FRIEDRICH'S Monog. Z. angew. Ent. 4 1919.

Xyloryctes satyrus, larva and pupa, WEISS pp. 193–198 pl. iv Ent. News 32.

Xylotrupes mindanaoensis Schultze = *Myrina pfeifferi* Redtenb. p. 195, HELLER Ent. Mitt. 10.

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Ancistrostoma argentinum sp. n. S. Amer. p. 179, MOSER Ent. Zeitung 82.

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Ctilocephala cayennensis p. 56, *sarana* p. 175, *kuntzeni* p. 176, spp. n. S. Amer., MOSER Ent. Zeitung 82.

Demodema paraguayensis sp. n. S. Amer. p. 156, MOSER Ent. Zeitung 82.

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Empecamenta calabarica sp. n. Old Calabar p. 53, MOSER Ent. Zeitung 82.

Gama fuscoaenea sp. n. S. Amer. p. 140, MOSER Ent. Zeitung 82.

Gastrohoplus gen. n. *mirabilis* sp. n. S. Amer. p. 165, MOSER Ent. Zeitung 82.

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Hircitis zikani sp. n. S. Amer. p. 174, MOSER Ent. Zeitung 82.

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Lepidiota pruinosa n. n. for *pruinosa* Heller (nec Wied.) p. 195, HELLER Ent. Mitt. 10.

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Listrochelus testaceipennis, durangoanus, spp. n. Mexico p. 261, MOSER D. ent. Zs. 1921.

Macroductylus ohausi p. 55, conjunctus p. 56, paraguayensis, bicolor p. 166, spp. n. S. Amer., MOSER Ent. Zeitung 82.

Melolontha vulgaris, über die Extraktstoffe von, pp. 193-202, ACKERMANN Zs. biol. München 71.

† *Melolonthites avis* sp. n. eocene Colorado p. 36 pl. viii f. 4, COCKERELL P. U. S. Mus. 59.

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Phyllophaga natural enemies, DAVIS pp. 53-138 pls. iii-xv figs. 1-46 Bull. Illinois Survey 13 Art. V 1919.

Phytalus hirtifrons Mexico, laminatus Brazil p. 259, ohausi Ecuador, kuntzeni Bolivia p. 260, spp. n., MOSER D. ent. Zs. 1921.

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Polyphylla fullo in Holland in 1921 p. 298, UYTENBOOGAART Ent. Ber. Helder 5.

Pseudohercitis gen. n. viridiaenea p. 174, corumbana p. 175, spp. n. S. Amer., MOSER Ent. Zeitung 82.

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Schizonycha subrugicollis p. 59, *pectoralis*, *frontalis*, p. 60, *squamosetosa* p. 61, spp. n., Africa, MOSER Ent. Zeitung 82.

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Symmela seticollis, *corumbana*, spp. n., S. Amer. p. 137, MOSER Ent. Zeitung 82.

Triodontonyx gen. n. type *ukere-wensis* sp. n. Africa p. 68, MOSER Ent. Zeitung 82.

Trochalus quadrifoliatus, *zuluanus*, spp. n., Africa p. 52, MOSER Ent. Zeitung 82.

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Adoretus surcoufi p. 234, *garamas* p. 235, spp. n., Sahara, PEYERIMHOFF Bull. Soc. ent. France 1921.—*A. interruptus* p. 26, *tsavoensis*, *vittipennis*, p. 27, spp. n., Congo, BENDERITTER Rev. zool. Afric. 9.

Anomala nigriventris p. 23, *sexmaculata*, *chalybeipennis*, p. 24, *kapiriensis*, *fuscoaenea*, p. 25, spp. n., Congo, BENDERITTER Rev. zool. Afric. 9.

Chrysoclamys gen. n. near *Spodochlamys* p. 187, *macropus* sp. n. Peru p. 188, BENDERITTER Bull. Soc. ent. France 1921.

Didrepanephorus mucronatus sp. n. Laos p. 379 pl. x f. 2, ARROW Ann. Nat. Hist. 7.

Peperonota vitalisi sp. n. Upp. Mekong, ARROW p. 380 pl. x f. 4 Ann. Nat. Hist. 7.

Popillia japonica, and the larvae of *Rutelini*, BÖVING P. ent. Soc. Washington 23 pp. 51–62 2 pls.

Strigoderma arboricola, life-history, HAYES pp. 121–125 Canad. Ent. 53.—*Strigoderma* ? larva, BÖVING p. 57 pl. vi P. ent. Soc. Washington 23.

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Agrilini, key to (Philippine) genera, p. 350, FISHER Philip. J. Sci. 18.

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Buprestis 8-guttata ab. n. *sexmaculata* p. 45, HELLEN Notulae Ent. 1.—*B. 8-guttata* ab. n. *bohemia* p. 95, OBENBERGER Časopis 18.

Chalcophorini, key to Australian genera p. 304, CARTER Proc. Linn. Soc. N.S. Wales 46.

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Dicerca aenea v. *carniolica* F., distinct variety p. 35, OBENBERGER Časopis 17.—*D. moesta* ab. n. *funeraria*, Greece p. 92, OBENBERGER Časopis 18.

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†*Sphenoptera minuta* sp. n. Aquitanian, Siebengebirge, p. 223 fig., MEUNIER Zs. D. Geol. Ges. 67 1915.

Stigmodera praetermissa sp. n. N. S. Wales p. 306, CARTER Proc. Linn. Soc. N. S. Wales 46.—*S. viridicauda* sp. n. Queensland p. 2 fig. 2, CARTER Ark. Zool. 13 No. 22.

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Trachys glabra, *metallica*, *philippinensis*, p. 421, *cuneiformis*, *mindanaensis*, *picta*, *piceiventris*, *cyanipennis*, *lunata*, *marmorata*, *ovata*, p. 422, spp. n., Philippine Is., key to species, FISHER Philip. J. Sci. 18.—*T. (Habroloma) subalutacea* Pic sp. n. Egypt p. 18, ALFIERI Bul. Soc. Ent. Egypte 1920 (1921).

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EUCNEMIDAE.

FLEUTIAUX tabulates the genera and lists species, Ann. Soc. ent. Belgique 61 pp. 23–41 etc., etc.

Key to *Eucnemidae*, *Trixagidae*, etc., REITTER pp. 65–90, Wien. Ent. Zeit. 38.

Monograph *Eucnemidae (Melasidae)* of Canada, BEAULIEU Nat. Canad. 46 pp. 76–83 etc.

Arhagus gen. n. p. 191 near *Adelorrhagus*, *bakeri*, sp. n., Borneo p. 192, FLEUTIAUX Ann. Soc. ent. Belgique 61 p. 72, FLEUTIAUX Philippine J. Sci. 18.

Aubailius gen. n. *decorsei* sp. n. Congo p. 414, FLEUTIAUX Bul. Muséum Paris 1921.

Baryus gen. n. *meridionalis* sp. n. Rep. Argentine p. 413, FLEUTIAUX Bul. Muséum Paris 1921.

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Isorhipus nigriceps ab. n. *flavipennis* p. 76, REITTER Wien. Ent. Zeit. 38.

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Xylobius seidlitzii ab. n. *imitator* p. 86, REITTER Wien. Ent. Zeit. 38.

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List of the genera of *Elateridae* and designation of the types, HYSLOP P.U.S. N. Mus. 58 No. 2353 pp. 621-680.

The mechanism of the spring of *Elateridae* pp. 116-119, DOERMANN Biol. Centralb. 40.

Agriotes spp., and *Athous haemorrhoidalis* larval structure, ROBERTS pp. 193-215 pl. iv. Ann. Appl. Biol. 8.

Brounaeolus n.n. for *Exaeolus* Broun, HYSLOP p. 61 P.U.S. N. Mus. 58.

Cardiophorus ebeninus, larva pp. 81-91 fig. 1, JANSSON Ent. Tidskr. 41.—*C. bipunctatus* var. n. *smithi* Spain p. 151, FUENTE Bol. Soc. Ibérica 19 (2) 1920.

Corymbites costalis ab. n. *oculatus* p. 98, HELLÉN Notulae Ent. 1.

Elatér longipennis sp. n. New York p. 159, NOTMAN J. New York Ent. Soc. 29.—*E. ochropterus* ab. n. *dimorphoides*, ROUBAL p. 135 Ent. Blätt. 17.

Elatichrosis n.n. for *Chrosis* Cand., HYSLOP p. 644 P.U.S. N. Mus. 58.

Elatocoelus n.n. for *Hypocoelus* Reitt., HYSLOP P.U.S. N. Mus. 58 p. 644.

Eleuphemus n.n. for *Euphemus* Lap., HYSLOP P.U.S. N. Mus. 58 p. 644.

Hemicleus normandi sp. n. Tunis p. 12, DE BUYSSE Bull. soc. hist. nat. Alger 11 1920.

Hypnoidus felti sp. n. New York p. 159, NOTMAN J. New York Ent. Soc. 29.—*H. pulchellus* ab. n. *apicalis* p. 99, HELLÉN Notulae Ent. 1.

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Melanoxanthus illustris, insignis, spp. n., Mindanao p. 73, FLEUTIAUX Philippine J. Sci. 18.

Menetriesia n.n. for *Isosoma* Men., HYSLOP P.U.S. N. Mus. 58 p. 656.

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Biology of *Drilidae* and *Micromalithidae* pp. 376-389, RÜSCHKAMP Biol. Centralbl. 40.

Anthocomus pulcher sp. n. Morocco p. 147, PIC Bull. Soc. Sci. Nat. Maroc 1.

Atypheila atra sp. n. Queensland p. 198, LEA Mem. Queensland Mus. 7.

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Ceylanidrilus atripennis E. Indies, nigriceps Ceylon spp. n., p. 11, PIC Mél. 33.

Colotes gorhami (= *Peribaeus punctatus* Gorh.) p. 71, indianus p. 72, spp. n., India, CHAMPION Ent. Mo. Mag. 57.

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TENEBRIONIDAE.

Walker's types of *Tenebrionidae* in British Museum, pp. 269-277, BLAIR Trans. ent. soc. London 1921.

Palaeartic *Tenebrionidae* of the Deutschen Entomologischen Institutes. Synonymy pp. 41-47, SCHUSTER Ent. Mitt. 10.

List of Mediterranean species of *Tenebrionidae*, ANDRES pp. 226-232 Jahrb. Nassau. Ver. Wiesbaden 71 1919.

The *Tenebrionidae* of West Africa, with tables of genera and species, GEBIEN Arch. Naturges. 86 Abt. A Heft 6 pp. 1-256 47 figs.

Tenebrionidae of Juan Fernandez pp. 29-30, GEBIEN Nat. Hist. Juan Fernandez 3 pt. 1 1921.

Beiträge z. Kennt. d. *Adesmiinen* d. trop. u. südl. Afrika, KUNTZEN Arch. Natg. Abt. A 81 Heft 7 1915 pp. 129-155.

Table of genera of *Gnathosiinae*, BOGDANOV-KATJKOV pp. 68-69 Rev. Russe Ent. 16 1916.

Catalogue of *Zophosinae* pp. 1-50 2 plates, CHATANAY Genera Insectorum fasc. 176 1921.

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Rhiphophoridae of Algeria, corrections and additions, pp. 19-20, CROS Bul. Soc. hist. nat. Algiers 12.

Geoscopus languidus Walker, Type p. 280, BLAIR Trans. ent. soc. London 1921.

Hemirrhypidius Heller to *Meloidae*, p. 196, HELLER Ent. Mitt. 10.

Macrosiagon tricuspidata Lep. biology, pp. 56-58, 70-75, CROS Bul. soc. hist. nat. Alger 11 1920.

CANTHARIDAE (or MELOIDAE).

Walker's types of *Meloidae* in British Museum, pp. 281-282, BLAIR Trans. ent. soc. London 1921.

The *Meloidae* of the Government of Stavropol, LUTSHNIK pp. 31-34 Acta Inst. Agronom. Stavropol. 1.

Diaphorocera carinicornis sp. n. Algeria p. 298 fig., CHABAUT Bull. Soc. ent. France 1921 1922.

Epicauta verticalis var. n. *priesneri* Albania, p. 181, MADER Wien. Ent. Zeit. 38.

Horia debyi Fairm. (= *Cissites testaceus* auct. nec F.) biology and chemistry, VAN ZIJF pp. 93-96 Treubia, Buitenzorg 2.

Hornia nymphoides Escal. synonymy and distribution, p. 76, CROS Bul. Soc. hist. nat. Alger 11 1920.

Lytta vesicatoria var. *maculata* var. n. Slovakia p. 4, DREXLER Soc. Entomol. Stuttgart 36.

Meloe auropictus sp. n. Centr. Asia p. 112 fig., DENIER Bull. Soc. ent. France 1921.—*M. foveolatus*, Guérin, nymph, p. 75, CROS Bul. Soc. hist. nat. Alger 11 1920.

Mylabris geminata ab. n. *obsoleta* Stavropol p. 32, LUTSHNIK Acta. Inst. Agronom. Stavropol. 1.

Pseudomeloe brevicornis p. 204, *larroussei* p. 205, *hornioides* p. 206 fig., spp. n. Amer. mer., DENIER Ann. Soc. ent. France 89.

Stenodera caucasica ab. n. *immaculata* p. 142, FLEISCHER Wien. Ent. Zeit. 38.

Zonabris chudeaui sp. n. Sahara p. 199, BEDEL Bull. Soc. ent. France 1921.—*Z. alienigera* ab. n. *eichleri* p. 142, FLEISCHER Wien. Ent. Zeit. 38.—*Z. apicipennis* var. n. *fourtaui*, *jugatoria* var. n. *alfierii*, N.E. Sinai, p. 45, PIC Bul. Soc. ent. Egypte 1920 (1921).

OEDEMERIDAE.

Copidita tenuicollis p. 218, *nigripennis* p. 219 spp. n. Queensland, LEA Mem. Queensland Mus. 7.

Dohrnia semiflava sp. n. Queensland p. 219, LEA Mem. Queensland Mus. 7.

OTHNIIDAE.

Ababa crinita sp. n. Texas p. 215, BORCHMANN Arch. Natg. 87 Abt. A Heft 1.

Othnius acutedentatus Sarawak, Luzon, *foveicollis* Kina Balu p. 199, *aruensis* Aru Is., *ceylanicus* Ceylon p. 200, *multiplicator* p. 201, *camerunus* p. 202, *variegatus* p. 203, *lineatus*, *pulcher*

p. 204, Cameroons, *brasiliensis* Brazil p. 205, *corporali* Sumatra p. 206, spp. n. figures of these and other species, BORCHMANN Arch. Natg. 87 Abt. A Heft 1.—*O. ochripes* sp. n. Palawan p. 198, textfig., BORCHMANN Ent. Mitt. 10.

PYTHIDAE.

Omineus Lew. to the *Mycterina*, *incanus* sp. n. Singapore, CHAMPION p. 8 Ent. Mag. 57.

PYROCHROIDAE.

Pogonocерomorphus gen. n. near *Pogonocerus* type *gracilis* sp. n. Fr. Guiana, p. 10, PIC Mél. 33.

Pseudopyrochroa opacicornis sp. n. Sumatra p. 11, PIC Mél. 33.

TRICTENOTOMIDAE.

Trictenotoma cindarella sp. n. Philippine Is. p. 278, KRIESCHE D. ent. Zs. 1921.

CURCULIONIDAE.

Notes on systematics and distribution of *Curculionidae*, SMIRNOV pp. 14-17 Rev. Russe Ent. 16 1916.

Curculionidae of the Mascarene islds., 126 spp., HUSTACHE Ann. Soc. ent. France 89 pp. 113-203 pls. iv-viii.

Brief notes on habits of North American *Curculionidae*, CHAMPLAIN & KNULL pp. 270-273 Ent. News 32.

Acantholophus, revision, key, *sellatus* p. 35, *sordidus*, *subtridentatus* p. 41, *nanus* p. 46, *parvulus* p. 47, *doddi* p. 51, *cupreomicans*, *ocelliger* p. 62, *tragocephalus* p. 64, *terrae-reginae* p. 68, spp. n. Australia, FERGUSON Proc. Linn. Soc. N. S. Wales 46.

Alcides dipterocarpi sp. n. India p. 166 fig., MARSHALL Bull. ent. Res. 12.—*A. ocellatus* Roel. = subsp. or ab. of *sempri* Pasc., *obsidianus* = ♀ *S. ocellatus*, *taylori* Schultze = *habena* Heller, *tagalicus* Schultze = *dictyodes* Heller p. 197, HELLER Ent. Mitt. 10.

Alophus triguttatus, habits, DUDICH Ent. Blätt. 17 pp. 62-64.

Anascopes key p. 404, *fasciatus* p. 405, *obliteratus* p. 406, spp. n., W. Australia, FERGUSON Proc. Linn. Soc. N. S. Wales 46.

Anisorrhynchus monachus spoliatus subsp. n. Triest, MÜLLER Kol. Rundsch. 9 p. 76.

Anthonomus nebulosus, life history, pp. 141-144, WELLHOUSE Ann. Ent. Soc. Amer. 14.

Aphiophorus minor sp. n. Japan p. 93, HUSTACHE Bul. Muséum Paris 1921.

Apion angustiforme sp. n. Finland p. 34, SAHLBERG Notulæ Ent. 1.—*A. acanthyllidis* sp. n. Tunis p. 77, *velatum kefense* subsp. n. p. 78, NORMAND Bull. Soc. ent. France 1921.—*A. urticarium wolffi*, *maximi* var. n. Sardinia p. 109, fig., KRAUSSE Arch. Natg. 81 Abt. A Heft 11.—*A. dissimilis* ab. nov. *wagneri*, Germany, p. 40, KOLBE Jahresh. Ver. Ins. Breslau 13.

Atelabus curculionoides note, p. 19, EMILIO & RASETTI Bull. Soc. ent. ital. 51.

Balaninus Germ. priority, *B. analis* = *interruptus* Kirsch, *marshalli* n. n. for *delicatulus* Marshall, p. 197, HELLER Ent. Mitt. 10.

Baris rubricatus sp. n. Japan p. 94, HUSTACHE Bul. Muséum Paris 1921.

Calandra rugosicollis sp. n. Mauritius p. 192, HUSTACHE Ann. Soc. ent. France 89.

Cathormiocerus attaphilus, KEYS p. 100 pl. i Ent. Mag. 57.

Ceuthorrhynchus; the food-plants of, pp. 19-22, URBAN Ent. Blätt. 17.—*quadridens*, habits, life-history, SPEYER pp. 118-124 pl. T.c.—*C. quadridens*, injurious habits, VOGEL p. 169-171 Canad. Ent. 53.—*C. plumbeus*, biology p. 8 fig. 3, NERESHEIMER & WAGNER Ent. Mitt. 10.—*C. contractus* Marsh. biology p. 138, HERING D. ent. Zs. 1921.—*C. karamani* sp. n. Dalmatia p. 76, MÜLLER Kol. Rundsch. 9.

Cionini, monograph of palaearctic spp. pp. 101-124, *Cionus flavopunctatus* Turkestan p. 111, *ganglbaueri* Europe p. 115, *griseopubens* Greece p. 117, *hypsibatus* Balkans p. 118, *leonhardi* Europe p. 119, *hauseri* East Turkestan p. 121, spp. n., *longicollis montanus* subsp. n. Europe p. 113, WINGELMÜLLER Kol. Rundsch. 9.—*C. woodi* sp. n. England p. 64, DONISTHORPE Ent. Rec. 33.—*C. longicollis* var. *montanus*, CHAMPION p. 43 Ent. Mag. 57.

Cleonus (Coniocleonus) pseudobliquus sp. n. Dalmatia p. 75, MÜLLER Kol. Rundsch. 9.

Cossonus dentipes p. 597, *limbaticollis* p. 598, spp. n., Samoa, MARSHALL P. Hawai. ent. Soc. 4.—†*C. robustus* sp. n. Aquitanian, Siebengebirge p. 222, MEUNIER Zs. D. Geol. Ges. 67 1915.

Cratopopsis impressus p. 168, *imerinus*, *fulvicornis* p. 170, *obscurus* p. 171, *alluaudi* p. 172, spp. n., Mascarene islds., HUSTACHE Ann. Soc. ent. France 89.

Cratopus rocki p. 129, *bouroni* p. 130, *variegatus*, *roseus*, p. 134, *arguatus* p. 136, *convexicollis* p. 137, *cariet*, *pilosus*, p. 138, *armatus* p. 142, *viridilimbatus* p. 144, with var. *concolor* p. 151, *ovalis* p. 149, *viridulus* p. 150, *tristis* p. 151, *griseoviridis* p. 152, *aeneoniger* p. 155, spp. n., Mascarene islds., *marmoreus* var. n. *pulverulentus* and *coesius* p. 141, *punctum* var. n. *emmeresi* p. 148, *murinus* var. n. *subfasciatus* p. 150, *brunnipes* var. n. *chlorostictus* p. 156, HUSTACHE Ann. Soc. ent. France 89.

Cryptorrhynchus donsдорffi Rosensch. is a *Diplogrammus* p. 197, HELLER Ent. Mitt. 10.

Cycloterinus mauritius sp. n. Mauritius p. 179, HUSTACHE Ann. Soc. ent. France 89.

Cylindropterus, systematic observations on, p. 168, REITTER Wien. Ent. Zeit. 38.

Elytrurus samoensis with var. *setiventris* p. 587, *bicolor*, *bivittatus* p. 588, spp. n. Samoa, MARSHALL P. Hawai. ent. Soc. 4.

Epiphyllax cuneatus, *semifrenatus*, spp. n. Madagascar, FAIRMAIRE Agr. prat. pays chauds 1902 p. 641 (not seen by recorder).

Eremnus maculosus p. 145, *cerealis* p. 147, *terrenus* p. 148, spp. n., Cape Colony, MARSHALL Ann. Nat. Hist. 8.

Eucalandra gen. n. for *setulosa* Gyll., FAUST Abh. Mus. Dresden Festschrift 1899 No. 2 p. 25 [previously omitted].

Euops tuberculatus sp. n. Queensland p. 220, LEA Mem. Queensland Mus. 7.

Euthyrhinus meditabundus, life-history pp. 63-68 pl. iii Bull. ent. Res. 12.

Exapion compactum circovichii subsp. n. Trentino p. 83, in key to subsp., SCHATZMAYER Bull. Soc. ent. ital. 51.

Gandarius gen. n., *variegatus* sp. n. Madagascar, FAIRMAIRE Agric. prat. pays chauds 1902 p. 642 (not seen by recorder).

Glyphostethus gen. n. *Cossoninae* near *Dryophthorus* p. 595, *cancellatus* sp. n. Samoa p. 596, MARSHALL P. Hawai. ent. Soc. 4.

Gronops postdentatus p. 150, *braunsi* p. 151, *oneili* p. 152, spp. n., Cape Colony, MARSHALL Ann. Nat. Hist. 8.

Gymnetron rostellum ab. n. *distinctum* p. 136, ROUBAL Ent. Blätt. 17.

Heteromias Faust n. nud. = *Leptomias* p. 196, HELLER Ent. Mitt. 10.

Hoplorkinoides palmarum sp. n. Costa Rica p. 80, VOSS D. ent. Zs. 1921.

Hyborrhynchus revision, key p. 395, *aculeatus* sp. n. W. Australia p. 396, FERGUSON Proc. Linn. Soc. N. S. Wales 46.

Hylobiini, stridulating organs, pp. 54-62, 85-93, 100-109, 133-143, 42 textfigs., KLEINE Ent. Mitt. 10.

Hylobius, stridulation p. 109, KLEINE Zs. Wiss. Insektenbiol. 16.—*H. abietis*, damaging pine trees, BENOIT pp. 58-59 Bull. Soc. Ardennes 9 1902.

Hyposomus longipilis p. 157, *bevinsi*, *albosuturalis* p. 158, spp. n., Cape Colony, MARSHALL Ann. Nat. Hist. 8.

Larinus pilosus Gyll., to *Microlarinus*, MARSHALL p. 155 Ann. Nat. Hist. 8.

Liparus germanus, food-plant, DUFFIELD p. 142 Ent. Mag. 57.

Mecistocerus fumosus sp. n. India p. 168 fig., genitalia p. 169 fig., MARSHALL Bull. ent. Res. 12.

Mecocorynus quadraticollis Heller distinct from *cristatus* Roelofs p. 197, HELLER Ent. Mitt. 10.

Mesites curvipes, damaging Populus and Salix, pp. 67-68 pl., KRAUSSE Arch. Natg. 80 A 9 1915.

Metapocyrtus violaceus Schultze = *bifasciatus* Waterh. p. 197, HELLER Ent. Mitt. 10.

Metialma japonica sp. n. Japan p. 92, HUSTACHE Bul. Museum Paris 1921.

Microlarinus observations on, p. 168, REITTER Wien. Ent. Zeit. 38.—*M. brevirostris* p. 155, *angustulus* p. 166, spp. n., Cape Colony MARSHALL Ann. Nat. Hist. 8.

Myocalandra intermedia sp. n. Mauriti-
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Nanophyes robustus sp. n. Java p. 4, PIC Mel. 33.

Neohyborrhynchus gen. n. p. 399, type *Hyborrhynchus rugosus* MacL. p. 400, FERGUSON Proc. Linn. Soc. N. S. Wales 46.

Neomecops gen. n. p. 91 *subarmatus* sp. n. p. 92, Japan, HUSTACHE Bul. Muséum Paris 1921.

Notogronops gen. n. p. 153 type *Gronops proletarius* Boh., *estriatus* sp. n. Algoa bay p. 154, MARSHALL Ann. Nat. Hist. 8.

Ocladius diversesculatus, diversisculptus, spp. n., Madagascar p. 4, PIC Mél. 33.

Orchestes rufipes, life-history, WEISS & LOTT pp. 152-155 Psyche 28.—*O. fagi* in Denmark p. 336, THOMSEN Ent. Medd. 13.

Orochlesis nigrofasciata sp. n. Samoa p. 593, MARSHALL P. Hawai. ent. soc. 4.

Ospilia odinae sp. n. India p. 179 fig., MARSHALL Bull. ent. Res. 12.

Otiorrhynchus rotundatus, habits, pp. 67-83 319-321 LINGERKEN, pp. 295 300 BURKHARDT, Zs. angew. Ent. 5 1919.

Oxydema fusiforme = (*Pseudolus hospes* P.), MARSHALL p. 596 P. Hawai. ent. Soc. 4.

Pachyrrhynchus absurdus Schultze = *P. speciosus* Waterh. p. 196, HELLER Ent. Mitt. 10.

Palaeocorynus bipunctatum sp. n. Réunion p. 185 pl. v f. 4, HUSTACHE Ann. Soc. ent. France 89.

Parahyborrhynchus gen. n. p. 400 type *Acantholophus convexiusculus* MacL. p. 401, FERGUSON Proc. Linn. Soc. N. S. Wales 46.

Paraleptops gen. n. near *Homaleptops*, *hispidulus* sp. n. Mauritius pl. v f. 3, HUSTACHE p. 178 Ann. Soc. ent. France 89.

Paratrachelizus gen. n. type *Trachelizus ferrugineus* F. America p. 32, KLEINE D. ent. Zs. 1921.

Phyllobius maroccanus sp. n. Morocco p. 26, PEYERIMHOFF Bull. Soc. ent. France, 1921.

Phytonomus arator var. n. *wolffi* Sardinia p. 109, KRAUSSE Arch. Natg. 81 Abt. A Heft 11.

Pissodes strobi in Quebec, biology, etc., pp. 218-224, MASSÉ Nat. Canad. 47.

Polydrosus chrysomela var. *insquamosus* var. n. Holland p. 309, syn. *salicicola* read *salsicola* p. 319, EVERTS Ent. Ber. Helder 5.—*P. mollis*, gynarchy, MÜLLER p. 174 Kol. Rundsch. 9.

Pseudocratopus gen. n. *Otiorrhynchini*, p. 175, *costulatus* p. 176 pl. vi f. 5, *minutus* p. 177 f. 1, spp. n., Réunion, HUSTACHE Ann. Soc. ent. France 89.

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Rhadinomerus bombacis p. 170 fig., *diversipes* p. 172 fig., *malloti* p. 175, *subfasciatus* p. 176, spp. n., India, genitalia figs., MARSHALL Bull. ent. Res. 12.

Rhamphus oxyacanthae Marsh, re-description p. 126, HERING D. ent. Zs. 1921.

Rhynchites viridissimus sp. n. Réunion p. 183, HUSTACHE Ann. Soc. ent. France 89.

†*Sciabregma tenuicornis* sp. n. eocene Colorado p. 36 pl. viii f. 1, COCKERELL P.U.S. N. Mus. 59.

Sericotrogus bryani sp. n. Easter island p. 462, SWEZEY P. Hawai. ent. Soc. 4.

Sibinia ventralis ♀, MÜLLER p. 78 Kol. Rundsch. 9.

Sitona puncticeps sp. n. Finland p. 35, SAHLBERG Notulæ Ent. 1.

Sphaerorhinus puncticollis sp. n. Samoa p. 585, MARSHALL P. Hawai. ent. Soc. 4.

Stenopelmus rufinasus in Britain, JANSON p. 225 Ent. Mag. 57.

Stereoderus binodifrons sp. n. Samoa p. 598, MARSHALL P. Hawai. ent. Soc. 4.

Strophosomus characters Danish spp. p. 330, MUNSTER Ent. Medd. 13.

Sympiezomias beesoni sp. n. India fig. p. 165, MARSHALL Bull. ent. Res. 12.

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PLATYPODIDAE.

Platypus secretus sp. n. Tonkin p. 25, SAMPSON Ann. Nat. Hist. 7.—*P. matalai* sp. n. Manaoas p. 26, BRÊTHES Rev. Chil. Hist. Nat. 23.

SCOLYTIDAE.

Scolytidae of Sajon, Siberia, BELOUSOV pp. 334-337 Rev. Russe Ent. 16 1917.

The *Scolytidae* of the Government of Petrograd, GORNOSTAEV pp. 308-315 Rev. Russe Ent. 16 1917.

Stridulation of *Ipidæ*, KLEINE Ent. Blätt. 17 pp. 22-26 figs.

Carphoborus chlodkovskyi p. 65 fig. 1, *teplouchovi* p. 65 fig. 2, spp. n., E. Russia, SPESIVTSEV Rev. Russe Ent. 16 1916.

Cryphalus pini sp. n. Kiautschau p. 39, EGGERS Ent. Blätt. 17.—*C. scopiger* p. 228 figs. 1-4, *redikorzevi* p. 232, figs. 5-6, *carpini* p. 234 figs. 7-11, spp. n., Ussuri, BERGER Rev. Russe Ent. 16 1917.

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Ernoporus (Procryphalus) fraxini sp. n. Ussuri p. 238 figs. 12-16, BERGER Rev. Russe Ent. 16 1917.

Hyledius gen. n. near *Phlocosinus*, *asper* sp. n. Luang Prabang, SAMPSON p. 35 Ann. Nat. Hist. 7.

Hylesinus cholodkovskyi sp. n. Ussuri p. 246 fig. 22, BERGER Rev. Russe Ent. 16 1917.—*H. bakeri* sp. n. Borneo p. 27, SAMPSON Ann. Nat. Hist. 7.

Hypothenemus leprieuri = (*krausei* Wichm.), EGGERS p. 40 Ent. Blätt. 17.

Ips tridentatus sp. n. Taurus p. 41, EGGERS Ent. Blätt. 17.—*I. pini*, history and biology pp. 73-76, LAFRANCE Nat. Canad. 48.

Scolytotplatypus biology and anatomy pp. 1-7 figs. 1-7, BERGER & CHOLODKOVSKY Rev. Russe Ent. 16 1916.—*S. ussuriensis* sp. n. Vladivostok p. 4 figs. 1-7, BERGER & CHOLODKOVSKY T.c.—*S. (Strophionocerus) parvus* sp. n. Borneo, SAMPSON. p. 36 Ann. Nat. Hist. 7.

Scolytus schevyrewi = (*frankei* and *emarginatus* Wichm.), EGGERS p. 43 Ent. Blätt. 17.

Strophionocerus n.n. for *Taeniocerus* Blandf., SAMPSON p. 36 Ann. Nat. Hist. 7.

Webbia 18-spinatus Penang, 14-spinatus Borneo, spp. n., p. 34, SAMPSON Ann. Nat. Hist. 7.

Xyleborus bicostatus Borneo p. 28, *versicolor* p. 29, *glauca*, *circumcissus*, p. 30, *asperatus*, Penang, *bellus* Borneo, p. 31, *coartatus* Trinidad p. 32, *improcerus* Siam p. 33, spp. n., SAMPSON Ann. Nat. Hist. 7.

BRENTHIDAE.

Brenthidae, myrmecophilous, p. 109-114, KLEINE D. ent. Zs. 1921.

Synonymy of certain *Brenthids*, KLEINE p. 8 Notulae Ent. 1.

Ulocerinae, systematic position pp. 269-274 3 textfigg., KLEINE Arch. Natg. 87 Abt. A Heft 6.

Allacompsus gen. n. p. 286, *separator* sp. n. p. 287 Cocos Is., KLEINE D. ent. Zs. 1921.

Anepsiotes elegans sp. n. Borneo p. 68, CALABRESI Bull. Soc. ent. ital. 51.

Apocemus gen. n. type *Megacerus conciliator* Kirsch p. 58 fig. 1, CALABRESI Bull. Soc. ent. ital. 51.

Cordus myrmecophilus sp. n. Congo, p. 112, KLEINE D. ent. Zs. 1921.

Corporaalia gen. n. p. 31, type *baryrhynchoides* sp. n. Sumatra p. 33 ff. 1-4, KLEINE Tijdschr. Ent. 64.

Cyphagogus gladiator Borneo, Sumatra, Philippines pp. 295-307 figs. 3-13, *eggarsi* Borneo pp. 295-324 fig. 22 spp. n., KLEINE Arch. Natg. 87 Abt. A Heft 6.

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Eupeithes bardus p. 124, *barbarus*, Sumatra, *dominator* Philippines, p. 125, spp. n., KLEINE Ent. Blätt. 17.

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Proterhinus abnormis, larval habits, fig., SWEZEY p. 470 Proc. Hawai. ent. Soc. 4.

CERAMBYCIDAE.

Notes on Palaearctic *Cerambycidae*, PLAVILSTSHIKOV pp. 18-22 Rev. Russe Ent. 16 1916.

The *Cerambycidae* of the Government of Poltava, PLAVILSTSHIKOV pp. 106-111 Rev. Russe Ent. 16 1916.

Catalogue of *Disteniinae* and *Lep-
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Acanthachryson gen. n. p. 354 fig. 7,
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Acanthoderes latevittata sp. n. Bolivia
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Ent. 64.

Acmaeops viridula Matsumura 1911,
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Geb. 1833, PLAVILSTSHIKOV p. 110 Rev.
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Alphus biannulatus sp. n. Peru and
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Tijdschr. Ent. 64.

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AURIVILLIUS Tijdschr. Ent. 64.

Anaglyptus abchasicus Pic 1911 =
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SHIKOV p. 111 Rev. Russe Ent. 17.

Batocera, structure, classification,
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1915.—*B. (Batocera) albofasciata albo-
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Desmocerus; natural history, BURKE
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Distenia gabonica sp. n. Gaboon p. 6,
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Dorcadion atlantis sp. n. Atlas p. 60,
BEDEL Bull. Soc. ent. France 1921.—
D. tristriatum Suvorov 1913 = *stri-
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Eunidia rufa sp. n. Mashonaland p.
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Paragaurotes subgen. n. of *Gaurotes*, type *G. ussuriensis*, PLAVILSTSHIKOV p. 116 Rev. Russe Ent. 17.

Parandra caspia, notes on, description of larva and pupa, ILJIN pp. 285–298 figs. 1–11 Rev. Russe Ent. 16 1917.

Paratoxotus fairmairei sp. n. Madagascar p. 48, BOPPE Genera Insectorum fasc. 178.

Phymatodes albicinctus correct name for *albofasciatus* p. 110, PLAVILSTSHIKOV Rev. Russe Ent. 17.

Phytoecia infernalis Pic 1904 belongs to *Thyestes* and is perhaps *Th. gebleri* Fald. var., PLAVILSTSHIKOV p. 111 Rev. Russe Ent. 17.

Piesarthrius (Anotisis) frenchi, description of female p. 323, CARTER Proc. Linn. Soc. N. S. Wales 46.

Plagithmysus, notes on pp. 493–499, *frater*, *decorus*, spp. n., Hawaii p. 500, PERKINS P. Hawai. ent. Soc. 4.—*P.* notes on habits, GIFFARD pp. 490–492 Proc. Hawai. ent. Soc. 4.

Plerodia variegata sp. n. Peru p. 50 pl. ii f. 7, AURIVILLIUS Tijdschr. Ent. 64.

Pogonochoerus hispidus variation, MÜLLER p. 65 Kol. Rundsch. 9.

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Pseudopidonia unifasciata p. 116, *subsuturalis* p. 118, Manchuria fully described, PLAVILSTSHIKOV Rev. Russe Ent. 17.

Pterolophia pulchra sp. n. Solomon Is. p. 48 pl. ii f. 4, AURIVILLIUS Tijdschr. Ent. 64.

Purpuricenrus lameerei nom. n. for *cinctus*, p. 110, PLAVILSTSHIKOV Rev. Russe Ent. 17.

Pycnomorphus bilineatus sp. n. Venezuela p. 51 pl. ii f. 13, AURIVILLIUS Tijdschr. Ent. 64.

Rhopalopus (Prorrhopalopus) speciosus Manchuria, fully described, PLAVILSTSHIKOV p. 119 Rev. Russe Ent. 17.

Saperda (Compsidia) innotatipennis Pic 1910 = *balsamiferae* Motsch. 1860, ab., PLAVILSTSHIKOV p. 111 Rev. Russe Ent. 17.

Semanotus rossicus magnificus subsp. n. Atlas p. 60, BEDEL Bull. Soc. ent. France 1921.

Semibatocera subgen. n. of *Batocera* (subgenotype *calanus*), KRIESCHE p. 115 Arch. Natg. 80 A. 11 1915.

Stenocorus sachalinensis Matsumura = *amurensis* Kraatz ab., PLAVILSTSHIKOV p. 111 Rev. Russe Ent. 17.

Trypanidius apicalis sp. n. Bolivia p. 53 pl. ii f. 11, AURIVILLIUS Tijdschr. Ent. 64.

Typodryas femoralis sp. n. India p. 7, BOPPE Genera Insectorum fasc. 178.

Tyrannolamia subgen. n. of *Batocera* (subgenotype *wallacei*), KRIESCHE p. 115 Arch. Natg. 80 A. 11 1915.

BRUCHIDAE.

Bruchus rufipes and *nubilus*, *rufipes* ab. n. *melanarthrus*, DONISTHORPE p. 33 Ent. Mag. 57.—*B. rufipes*, food-plant, BLAIR p. 114 T. c.

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Cryptostome beetles, notes, pp. 23, 24, MAULIK Rec. Ind. Mus. 22.

Aenidea bicolor, *nigriventris*, spp. n., E. Africa p. 9, LABOISSIÈRE Bull. Soc. ent. France 1921.

- Agbalus romani* sp. n. Amazonas p. 32, WEISE Ark. Zool. 14 No. 1.—*A. dilatipes* Paraguay p. 195, *viridis* Costa Rica p. 214, spp. n., BOWDITCH Entomol. 54.
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- Alethaxius carinipennis* p. 214, *aenea*, *pallida* p. 215, spp. n., Amer. mer., BOWDITCH Entomol. 54.
- Anisodera* Dup. = (*Lissochila* Weise), ACHARD p. 62 Bull. Soc. ent. France 1921.
- Anodontelytrus* subgen. n. of *Thelyterotarsus* p. 268, JACOBSON Rev. Russe Ent. 16 1917.
- Anopsilus* subgen. n. of *Thelyterotarsus* p. 268, *zarudnyi* Persia p. 268, *minimus* Turkestan p. 270, spp. n., JACOBSON Rev. Russ. Ent. 16 1917.
- Antitypona multicolor*, *segnis*, spp. n., Amazonas p. 19, WEISE Ark. Zool. 14 No. 1.
- Aphthona heptapotamica* Turkestan p. 34, fig. 8, *thoracica* Persia p. 35 fig. 9, *issykensis* Turkestan p. 36, *suvorovi* Transbaicalia p. 37, fig. 10, spp. n., OGLOBLIN Rev. Russe Ent. 17.—*A. ophthalmica* sp. n. Amazonas p. 139, WEISE Ark. Zool. 14 No. 1.
- Apophyllia angolensis* sp. n. Angola p. 285, LABOISSIÈRE Bul. Muséum Paris 1921.—*A. jeanneli* sp. n. E. Africa p. 8, LABOISSIÈRE Bull. Soc. ent. France 1921.
- Asphaera purana* sp. n. Amazonas p. 148, WEISE Ark. Zool. 14 No. 1.
- Austrosteronplatys* subgen. n. of *Steronplatys* for *S. longulus* p. 24, JACOBSON Bull. Station rég. prot. plantes Petrograd 2.
- Axiotheata oculata* sp. n. Amazonas p. 170, WEISE Ark. Zool. 14 No. 1.
- Baliosus latus* sp. n. Paraguay p. 269, WEISE Arch. Natg. 87 Abt. A Heft 5.
- Barombia quadrilineata*, *benguensis*, spp. n. Angola p. 287, LABOISSIÈRE Bul. Muséum Paris 1921.
- Batophila*, the species pp. 89–98, *acutangula* sp. n. Wladiwostok p. 91, HEIKERTINGER Kol. Rundsch. 9.
- Belona sagonai* sp. n. Congo p. 85, LABOISSIÈRE Rev. zool. Afric. 9.
- Bronthispa* (?) *chalybeipennis* sp. n. Ponape p. 423, ZACHER, Zs. angew. Ent., 2, 1915.
- Cassida mandli* sp. n. Ussuri p. 85, *murraea ussuriensis* subsp. n. p. 84, SPAETH Kol. Rundsch. 9.
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- Choris nigrita* sp. n. Amazonas p. 33, WEISE Ark. Zool. 14 No. 1.
- Chrysomela ruficollis* read *rugicollis* p. 318, EVERTS Ent. Ber. Helder 5.—*C. carnifex superstes* subsp. n. Atlas p. 61, BEDEL Bull. Soc. ent. France 1921.—*C. rossia* var., MÜLLER p. 72 Kol. Rundsch. 9.
- Chthoneis limbella* sp. n. Amazonas p. 103, WEISE Ark. Zool. 14 No. 1.
- Clythra messae* sp. n. Carniola p. 66, MÜLLER Kol. Rundsch. 9.
- Colaphellus* (*Colaphus*) *sophiae* Schall f. n. *bicolor* p. 273, REINECK D. ent. Zs. 1921.

Colaspis, synonymical and other notes, *townsendi* Mexico, *lebasoides* Guatemala p. 27, *flavofasciata* Peru, *concolor* Guiana p. 28, *goyazensis*, *dilatipes*, Brazil p. 29, *klagii* Amazonas, *punctipennis* Brazil p. 72, *basipenne*, *dispar*, *otilensis*, Bolivia p. 73, *brunneipennis* Ecuador, *peruvianus*, 4-foveata Brazil p. 74, 12-notate (sic) Bolivia, *cinctipennis* Amazons p. 75, *tucumanensis* p. 169, *viridicollis* Brazil, *bolivianus* p. 170, *impressipennis* Cochabé, *jocosa* Bolivia, *aeneicollis* Beni R. p. 171, *fuscipes* Mapiiri, *obliqua* Bolivia p. 190, *bidenticollis*, *denticollis* p. 191, *aeneus* p. 192, Argentina, spp. n., BOWDITCH Entomol. 54.—*C. affinis* p. 34, *soror*, *discolor* p. 36, *aemula*, *punctigera* p. 38, *perturbata* p. 39, *pleuralis* p. 40, *aenola*, *rugifera* p. 42, *romani* p. 43, *signata* p. 44, *micans* p. 45, *simplex* p. 46, (*Colaspermorpha*) *lugens*, *meligethoides* p. 47, *edura* p. 48 spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.

Colaspoides fasciculata sp. n. Queensland p. 228, LEA Mem. Queensland Mus. 7.

Copa nigripennis sp. n. Congo p. 50 figs., LABOISSIÈRE Rev. zool. Africa. 9.

Coptocephala scopulina and allies, MÜLLER pp. 68–70 Kol. Rundsch. 9.

Crioceris guerryi, *rufimembris*, *subcostata* China p. 2, *foveolata* Cochinchina p. 3, spp. n., PRO Mél. 33.—*C. ruficornis* China p. 136, *cyaneitarsis* Tonkin p. 137, spp. n., PRO Bull. Soc. ent. France 1921.

Cryptocephalus maindroni (Jac.) Indes: Mahe, *bengalensis* Bengal, *galienii* Madagascar, *minutissimus* Obock p. 1, *favareli*, *binotatithorax*, *bingeri* Congo p. 2, spp. n., PRO Mél. 33.—*C. vittatus* ab. *interruptus* ab. n. Holland p. 307, EVERTS Ent. Ber. Helder 5.—*C. vouauxi* n.n. for *thibetanus* Breit, *vuillei* n.n. for *scabiosus* Rein., ACHARD p. 61 Bull. Soc. ent. France 1921.—*C. nanulus* sp. n. Amazonas p. 8, WEISE Ark. Zool. 14 No. 1.

Demothispa romani sp. n. Amazonas p. 174, WEISE Ark. Zool. 14 No. 1.

Diabrotica plebeja p. 63, *quadricollis* p. 64, *manaënsis* p. 65, *fallaciosa* p. 68, *inornata* p. 70, *munda* p. 71, *praeusta* p. 72, *novemguttata* p. 73, *romani* p. 74, *discreta* p. 76, *pilifera* p. 78, *partita*

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Diampthidia femoralis, the varr., *rufescens* var. n., ACHARD p. 188 Bull. Soc. ent. France 1921.

Disonychia bifasciata, *aemula* p. 127, *vicina* p. 128, *huebneri* p. 129, *frontalis* p. 130, *decaepila* p. 131, spp. n. Amazonas, WEISE Ark. Zool. 14 No. 1.—*D. pennsylvanica parva* var. n. Indiana p. 16, BLATCHLEY J. New York Ent. Soc. 29.

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Donacia aureocincta sp. n. Finland p. 36, SAHLBERG Notulae Ent. 1.—† *D. sp.* p. 129, STUDER Eclogae Geol. Helvet. Lausanne 16 1920.

Doryphora romani sp. n. Amazonas p. 57, WEISE Ark. Zool. 14 No. 1.—*D.* revision pp. 195–201, *centumpunctata* Peru p. 199, *sparasata* Brazil ? p. 200, *biolleigi* Costa Rica p. 201, spp. n., ACHARD Ann. Soc. ent. Belgique 61.

Edusa decemlineata sp. n. Australia p. 228, LEA Mem. Queensland Mus. 7.

Epitrix simplex p. 162, *pellucida* p. 163, spp. n. Amazonas, WEISE Ark. Zool. 14 No. 1.

Ergana vittata sp. n. Angola p. 286, LABOISSIÈRE Bul. Muséum Paris 1921.

Eriphyllina congrua sp. n. Amazonas p. 51, WEISE Ark. Zool. 14 No. 1.

Exora amazona sp. n. Amazonas p. 97, WEISE Ark. Zool. 14 No. 1.

Galeruca calvariensis parasite of elm trees, BENOIT pp. 48–49 Bull. Soc. Ardennes 8 1901.

Galerucella absimilis p. 89, *amazonica* p. 90, spp. n., *brevicornis* p. 90 nom. n. Amazonas, WEISE Ark. Zool. 14 No. 1.—*G. hamaticornis* sp. n. E. Africa p. 7, LABOISSIÈRE Bull. Soc. ent. France 1921.

Galerucini the classification, LABOISSIÈRE pp. 34–37 Rev. zool. Afric. 9.

Glenidion impressum sp. n. Amazonas p. 155, WEISE Ark. Zool. 14 No. 1.

Gratiana inurbana sp. n. Amazonas p. 196, WEISE Ark. Zool. 14 No. 1.

Gynandrophthalma garretai n.n. for *japonica* Fleisch., ACHARD p. 61 Bull. Soc. ent. France 1921.

Haltica lazulina Buchar p. 23, *tsharynensis* Turkestan p. 24 fig. 2, *kozlovi* Gan-su, China p. 25 fig. 3, *suworovi* Turkestan p. 27 fig. 4, *convexipennis* with var. *eo*a Transbaicalia p. 28 fig. 5, *tianshanica* Turkestan p. 30 fig. 6, *issykensis* Turkestan p. 31 fig. 7, *difficilis* Turkestan p. 33, spp. n., OGLOBLIN Rev. Russe Ent. 17.—*H. gloriosa* p. 23, *viatica* p. 24, spp. n., Indiana, BLATCHLEY J. New York Ent. Soc. 29.

Habrophora amazona sp. n. Amazonas p. 52, WEISE Ark. Zool. 14 No. 1.

Hemixantha foveolata, *rugosa*, *similis*, spp. n., Angola p. 290, LABOISSIÈRE Bul. Muséum Paris 1921.

Hermacophaga tristis Transbaicalia p. 20 fig. 1, *nigricornis* Transbaicalia p. 21, spp. n., OGLOBLIN Rev. Russe Ent. 17.

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Heteraspis lesnei sp. n. China p. 332, BERLIOZ Bul. Muséum Paris 1921.

Heterispa bogotensis sp. n. Bogota p. 274, WEISE Arch. Natg. 87 Abt. A Heft 5.

Hispa chatanayi n.n. for *formosa* Ach., ACHARD p. 61 Bull. Soc. ent. France 1921.

Homalispis egena sp. n. Amazonas p. 172, WEISE Ark. Zool. 14 No. 1.

Homoeostigmus gen. n. for *Pachybrachis caprea* p. 267, JACOBSON Rev. Russe Ent. 16 1917.

Homophoita gloriosa sp. n. Amazonas p. 141, WEISE Ark. Zool. 14 No. 1.

Hoplionota daptana p. 721, *hedysma* p. 723, *benguetina* p. 724 Philippine Is., *calligera* p. 730 Borneo, spp. n., and discussion of Wagner's spp., SPAETH Philip. J. Sci. 18.

Huillania gen. n. *foramina* sp. n. Angola p. 289, LABOISSIÈRE Bul. Muséum Paris 1921.

Hyphaenia africana sp. n. p. 9, LABOISSIÈRE Bull. Soc. ent. France 1921.

Hypolampsis iniqua sp. n. Amazonas p. 160, WEISE Ark. Zool. 14 No. 1.

Idacantha hastata sp. n. Congo p. 67 fig. with varr. *limbata* & *humeralis* p. 70, LABOISSIÈRE Rev. zool. Afric. 9.

Idacanthites gen. n. for part of *Aulacophoites*, LABOISSIÈRE p. 63 Rev. zool. Afric. 9.

Iphimeis speciosa p. 21, *olivacea* p. 22, *concinna*, *laeta* p. 23, *signata*, *suturalis* p. 24, *ochracea*, *pallida* p. 25, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.

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Lactana bipunctata p. 82, *oculata* p. 83, spp. n., Congo, LABOISSIÈRE Rev. zool. Afric. 9.—*L. transverso-fasciata* sp. n. Ivory Coast p. 151, LABOISSIÈRE Bul. Muséum Paris 1921.

Laetiacaantha gen. n. p. 73 near *Idacantha*, *ruficollis* sp. n. Congo p. 75 fig., LABOISSIÈRE Rev. zool. Afric. 9.

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Leptaulaca fissicollis varr. n. pp. 57–60, *schoutedeni* sp. n. Congo p. 62, LABOISSIÈRE Rev. zool. Afric. 9.

Leptinotarsa decemlineata in Germany, REH Zs. angew. Ent. 2 1915 pp. 213–219.

Leptophysa vittata sp. n. Amazonas p. 165, WEISE Ark. Zool. 14 No. 1.

Lithonoma lateralis sp. n. Atlas p. 61, BEDEL Bull. Soc. ent. France 1921.

- Litocassis* gen. n. p. 197, *placidula* p. 198 sp. n. Amazonas, WEISE Ark. Zool. 14 No. 1.
- Longitarsus transbaicalicus* sp. n. Transbaicalia p. 38, OGLOBLIN Rev. Russe Ent. 17.—*L. arenaceus* p. 19, *suspectus* p. 20, *misellus*, *saltatus* p. 21, spp. n., Indiana, BLATCHLEY J. New York Ent. Soc. 29.
- Luperodes amazonus* p. 98, *nigriceps*, *frontalis* p. 99, *brevicollis*, *longicornis* p. 100, *antennalis*, *limbipennis* p. 101, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.—*L. pygidialis* sp. n. Angola p. 286, LABOISSIÈRE Bul. Muséum Paris 1921.
- Luperus* (*Calomicrus*) *amazonus* p. 104, *parilis*, *hospes* p. 105, *aemulus*, *variegatus* p. 106, *procerulus*, *tenuis* p. 107, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.
- Macrogonus ventralis* sp. n. N. S. Wales p. 361, LEA Proc. Linn. Soc. N. S. Wales 46.—*M. bifoveicollis* sp. n. Queensland p. 229, LEA Mem. Queensland Mus. 7.
- Megalognatha chevalieri* p. 152, *carinata* p. 154, spp. n., Ivory Coast, LABOISSIÈRE Bul. Muséum Paris 1921.—*M. rohani* sp. n. Angola p. 285, LABOISSIÈRE Bul. Muséum Paris 1921.
- Megascelis flicornis* p. 2, *diducta* p. 4, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.
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- Neolaetana* gen. n. p. 76 type *Prosmidia neumani* W., *basalis* p. 77 fig., *maynei* p. 79, spp. n., Congo, LABOISSIÈRE Rev. zool. Afric. 9.
- Nephrica longicornis* sp. n. Amazonas p. 136, WEISE Ark. Zool. 14 No. 1.
- Nodonota moesta* p. 25, *nigra* p. 26, *interrupta* p. 27, *varicornis*, *flicornis* p. 28, *fallaciosa* p. 29, *rufula* p. 30, *moerens* p. 31, *cyanescens* p. 32 Amazonas, *chrysicollis* p. 31 Peru, spp. n., WEISE Ark. Zool. 14 No. 1.
- Octhispa flavipes* p. 188, *nigriceps* p. 189, *exilis* p. 190, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.
- Octotoma brasiliensis* sp. n. Brazil p. 270, WEISE Arch. Natg. 87 Abt. A Heft 5.
- Oedionychis sternalis* p. 143, *delineata* p. 144, *decolorata* p. 146, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.
- Oidites* in place of *Adorites* Chap., LABOISSIÈRE p. 38 Rev. zool. Afric. 9.
- Omammatus amazonus* p. 161 Amazonas, *apicipennis* p. 162 Bolivia, spp. n., WEISE Ark. Zool. 14 No. 1.
- Orina cacaliae*, *tristis*, food-habits, KLEINE pp. 74–81 pl. Ent. Blätt. 17.
- Oxygona romani* p. 166, *concinna* p. 167, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.
- Pachnephorus lineatus* E. Africa p. 2, *latior* Madagascar, *curtus* China, *anceyi* Singapore p. 3, spp. n., PIC MEl. 34.
- Pachybrachys curtippennis* Buchara p. 66, *pister*, *auliensis* Turkestan, *laevigatus* Buchara p. 67, spp. n. BREIT Ent. Blätt. 17.
- Palaeothona rufa*, *varians* p. 138, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.
- Paracantha* gen. n. p. 71 near *Idacantha*, *multicolor* W. var. n. *ugandensis* p. 72 fig., LABOISSIÈRE Rev. zool. Afric. 9.
- Paria nigra* p. 54, *aemula* p. 55 spp. n. Amazonas, WEISE Ark. Zool. 14 No. 1.
- Phaedon bogdanovi-katjkovi* sp. n. Russia p. 20, JACOBSON Bull. Station rég. prot. plantes Petrograd 2.—*P. pyritosus*, wing var., MÜLLER p. 73 Kol. Rundsch. 9.
- Phyllobrotica subtilis* sp. n. Amazonas p. 104, WEISE Ark. Zool. 14 No. 1.
- Phyllotreta hochettlingeri*, redescription and habits, p. 27, ROUBAL Soc. Entomol. 36.

Physimerus fur p. 154 Amazonas, *limbifer* p. 155 Bolivia, spp. n., WEISE Ark. Zool. 14 No. 1.

Physocoryna parvula sp. n. Paraguay p. 269, WEISE Arch. Natg. 87 Abt. A Heft 5.

Plastonothus dilutipes sp. n. Amazonas p. 14, WEISE Ark. Zool. 14 No. 1.

Platyxantha versicolor p. 8, *depressa* p. 9, spp. n., E. Africa, LABOISSIÈRE Bull. Soc. ent. France 1921.

Plesispa nigra sp. n. Malacca p. 451 fig., MAULIK Ann. Nat. Hist. 7.

Podoxenus distortus sp. n. Brazil p. 255, BOWDITCH Entomol. 54.

Poebates ferruginea sp. n. Amazonas p. 159, WEISE Ark. Zool. 14 No. 1.

Prosplecesta gen. n. p. 169, *rufula* p. 170 sp. n. Amazonas, WEISE Ark. Zool. 14 No. 1.

Psylliodes, the wingless palaearctic, HEIKERTINGER pp. 39-62, *pallidicornis* Caucasus p. 44 sp. n., *schwarzi pyrenaica* subsp. n. p. 43, *subaenea styriaca* subsp. n. p. 44, Kol. Rundsch. 9.—*P. affinis*, morphology and biology of early stages, TÖLG pp. 1-9, of imago, HEIKERTINGER, pp. 10-28, Zs. angew. Ent., 2, 1915.

Rhaphidopalpites, n. n. in place of *Aulacophorites* Chap., LABOISSIÈRE p. 44 Rev. zool. Afric. 9.

Rhabdopterus grenadensis St. Vincent, *blatchleyi* Florida, p. 234, *similis* Bolivia, *angulicollis* Beni R., p. 235, *tarsata* Ecuador, *aciculatus* Brazil, p. 236, *sulcipennis* p. 253, *ignotus*, Peru, *punctatissima* Paramba, p. 254, *rosenbergi* Cachabé p. 255, spp. n., BOWDITCH Entomol. 54.

Rhyarida cyrtops sp. n. Australia p. 266, LEA Trans. ent. soc. London 1921.

Rohania gen. n. *apicalis*, *megalo-phthalma*, spp. n. Africa, p. 288, LABOISSIÈRE Bul. Muséum Paris 1921.

Sagra, species from Africa and Madagascar, KUNTZEN pp. 45-61 Arch. Natg. 80 A. 9. 1915.—*S. tristis cuprea* Unterrasse interior Togoland p. 48, *tristis galinieri* Unterrasse madibirensis German East Africa p. 48, *bicolor* sub-spp. n. *damarensis* Damaraland p. 52, *clavareau* German East Africa p. 53, KUNTZEN, T.c.

Sceloenopla contraria p. 175 (*Microdonta*) *varipes* p. 177, (*Microdonta*) *moesta* p. 179, spp. n., Amazonas, WEISE Ark. Zool. 14 No. 1.—*S. (Pseudhispa) quadricolor* p. 263, (*Microdonta*) *kraatzii* p. 264, spp. n. Peru, WEISE Arch. Natg. 87 Abt. A. Heft 5.

Schematiza humeralis p. 91, *ceramboides* p. 92 spp. n. Amazonas, WEISE Ark. Zool. 14 No. 1.

Spilophora romani sp. n. Amazonas p. 192, WEISE Ark. Zool. 14 No. 1.

Stenophyma modesta sp. n. Amazonas p. 137, WEISE Ark. Zool. 14 No. 1.

Systema puberula p. 164, *tumidicollis* p. 165 spp. n. Amazonas, WEISE Ark. Zool. 14 No. 1.—*S. plicata* sp. n. Indiana p. 26, BLATCHLEY J. New York Ent. Soc. 29.

Tanygaster gen. n., *ovalis* sp. n. Indiana p. 27, BLATCHLEY J. New York Ent. Soc. 29.

Thelyterotarsus, tables of Palaearctic genera, subgenera, and species, JACOBSON pp. 266-274, Rev. Russe Ent. 16 1917.—*T. nigrifrons* Bucharra p. 272, *semenovi* Persia p. 272, *bergi* Turgai p. 274, *baeckmanni* Turkestan p. 274, spp. n., JACOBSON. T.c.

Tituboea octopunctata var. n. *hypomelaena*, BEDEL p. 61 Bull. Soc. ent. France 1921.

Trachyscelida rufa sp. n. Amazonas p. 96, WEISE Ark. Zool. 14 No. 1.

Triarius tropicus sp. n. Amazonas p. 85, WEISE Ark. Zool. 14 No. 1.

Trichaltica romani Amazonas, *saltensis* Argentina spp. n. p. 134, WEISE Ark. Zool. 14 No. 1.

Trichochrysea splendida Laos, *tarsata* China, spp. n. p. 171, ACHARD Bull. Soc. ent. France 1921.

Uroplata variegata p. 271, *coarctata* p. 272, *obscura*, *nigritarsis* p. 273, spp. n. Paraguay (& Brazil), WEISE Arch. Natg. 87 Abt. A. Heft 5.—*U. fraudulenta* p. 183, *quadridens* p. 184, *romani* p. 185 spp. n. Amazonas, WEISE Ark. Zool. 14 No. 1.

Xenochalepus bogotensis sp. n. Bogota p. 266, WEISE Arch. Natg. 87 Abt. A Heft 5.

EROTYLIDAE.

Diphyllus flavonotatus sp. n. N. S. Wales p. 364, LEA Proc. Linn. Soc. N. S. Wales 46.

Diplocoelus xanthorrhoeae p. 364, *apicicollis* p. 365, spp. n. Australia, LEA Proc. Linn. Soc. N. S. Wales 46.—*D. sericeus, dilataticollis* spp. n. Queensland, p. 237, LEA Mem. Queensland Mus. 7.

Episcaphula tetrasticta sp. n. Queensland p. 362, LEA Proc. Linn. Soc. N. S. Wales 46.—*E. flavofasciata* p. 231, *inclusa* p. 232 spp. n. Queensland, LEA Mem. Queensland Mus. 7.

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Tainophthalmus crotchii = *Heterotylus herziniae* Kirsch, p. 196, HELLER Ent. Mitt. 10.

Thallis basipennis sp. n. N. W. Australia p. 362, LEA Proc. Linn. Soc. N. S. Wales 46.—*T. australiae* p. 283, *melancholica* p. 234 spp. n. Queensland, LEA Mem. Queensland Mus. 7.

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Danae rufescens Dahomey, *sibutensis* Fort Sibut spp. n. p. 2, Prc Mël. 34.

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Idiophyes viridis, dubius p. 367, *humeralis* p. 368, spp. n. Australia, LEA Proc. Linn. Soc. N. S. Wales 46.

Periptyctus bryophilus p. 366, *latericollis* p. 367, spp. n. Australia, LEA Proc. Linn. Soc. N. S. Wales 46.

Perrisina n.n. for *Perrisia* Mars. p. 106, STRAND Ent. Zs. 34.

Platyauchenia 5-maculata sp. n. Brazil p. 2, Prc Mël. 34.

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Stenotarsus convexus sp. n. Madagascar p. 2, Prc Mël. 34.—*S. parallelus* p. 365, *alternatus* p. 366, spp. n. Australia, LEA Proc. Linn. Soc. N. S. Wales 46.—*S. pisoniae, picticollis, quinquenotatus*, spp. n. Queensland p. 239, LEA Mem. Queensland Mus. 7.

Trycherus maculatus sp. n. Congo p. 1, Prc Mël. 34.

COCCINELLIDAE.

Coccinella 7-punctata var. *norikonis* var. n. Hondo p. 89, KURISAKI Konch. Sek. 25.—*C. varians*, habits p. 38, H. E. C. Rev. Chil. Hist. Nat. Santiago 24 1920.—*C. 5-punctata* ab. n. *ancora* Germany p. 56, KÜNNEMAN D. ent. Zs. 1921.

Ortalia pallens, note, pp. 170-171, HARRIS S. Afr. Journ. Sci. 18.

Psyllobora taedata, natural history, DAVIDSON Ent. News 32 pp. 83-89.

Semiadalia notata ab. n. *falcozi* p. 142, FLEISCHER Wien. Ent. Zeit. 38.

CORYLOPHIDAE.

Aphanocephalus potamophilus, pallidipennis, quadrimaculatus spp. n. Australia, p. 369, LEA Proc. Linn. Soc. N. S. Wales 46.—*A. bimaculatus, quadrinotatus* spp. n. Queensland p. 240, LEA Mem. Queensland Mus. 7.

HYMENOPTERA.

Records of Sardinian *Hymenoptera*, KRAUSSE p. 122 Arch. Natg. 81 A. 2 1915.

The ancestry of *Hymenoptera*, CRAMPTON P. ent. Soc. Washington 23 pp. 35-40.

Hymenoptera of Brandenburg, SCHIRMIR pp. 152-156 Arch. Natg. 81 A. 3 1915.

Hymenoptera of Amanus Mts., pp. 150-180, FAHRINGER & FRIESE Arch. Natg. 87 Abt. A Heft 3.

Habits and instinct of *Aculeata*, FERTON pp. 329-375 Ann. Soc. ent. France **89**.

Bees and wasps of Barkuda Island pp. 381-391, DOVER Rec. Ind. Mus. **22**.

List of Hymenopterous parasites and hosts, RUSCHKA & FULMEK pp. 390-412, Zs. angew. Ent. **2** 1915.

Hymenoptera of Valais, Switzerland (concluded), keys, p. 50-123, **38**, pp. 226-30 **39**, FREY-GESSNER Bul. Murith.

Hymenoptera from Greymouth, New Zealand, CAMERON Mem. Manchester Soc. **42** 1898 No. 1.

Classification of the nests of bees and wasps, MALYSHEV pp. 1-19 Rev. Russe Ent. **17**.

Aculeate *Hymenoptera* and Chrysidids of Mesopotamia and Persia, MORICE pp. 816-828, figs. **27**; pp. 192-203, figs. **28**; J. Bombay Nat. Hist. Soc.

Parasitic *Hymenoptera* bred from pests of stored grain, pp. 8-32, WATERSTON Royal Soc. Reports of the Grain Pests (War) Committee, No. 9 1921, bibliography.

APIDAE.

The *Apidae* of Crete, STRAND pp. 145-168 Arch. Natg. **81** A. 4 1915.

African *Apidae* in the Berlin Entomological Museum, STRAND pp. 61-67 Arch. Natg. **80** A. 9 1915.

Über die chemische Natur des Bienengiftes, FLURY Arch. exp. Path. Leipzig **85** 1920 pp. 319-338.

Fertilization in the Honey-bee, pp. 225-265, 267-286, BISHOP J. exp. Zool. **31**.

Chemical nature of poison, pp. 319-338, FLURY Arch. exp. Path. **85** 1920.

Apidae, distribution etc., pp. 124-139, STRAND Arch. Natg. **81** Abt. A Heft 11.

Notes on bees and evening flowers, STEVENS pp. 65-69 Canad. Ent. **53**.

Catalogue *Apidae* of Finland, FORSIUS & NORDSTRÖM pp. 70-77 Notulae Ent. **1**.

Die Pollensammelapparate der bauchsammelnden Bienen (*Gastrilegidae*), MEYER Jena. Zs. Natw. **57** 1921 pp. 228-268.

"Trumpeter" bumble-bees, GUTBIER pp. 331-333, Rev. Russe Ent. **16** 1917.

Acamptopoeum trifasciatum = *Camptopoeum herbsti* p. 111, HERBST Ent. Zeitung **82**.

Agapostemon virescens Fabr. = (*viridulus* auctt.), COCKERELL p. 363 Ann. Nat. Hist. **8**.

Allodape centrimaculata Cape Colony p. 36, *retrorsa* Cape Colony p. 37, *exoloma* Cape Colony p. 38, *dichroa* Cape Colony p. 39, *dichroides* Lake Nyasa p. 40, *pembana* p. 41, *stigma* German E. Africa p. 42, *obscuripennis* Cape Colony p. 43, *planiceps* Cape Colony p. 44, *lolonis* Cameroon p. 45, spp. n.; *lolonis* var. n. *usambarae* Usambara p. 46; *pogonia* Cape Colony p. 46, *liliputana* Delagoa Bay p. 47, *usambaricola* Usambara p. 47, *taita* Taita p. 49, spp. n.; *taita* abb. n. *humeralia*, *langenburgensis*, *virilipicta*, p. 51; *somatotheca* Tanganyika p. 51, *kibonotonis* Kilimanjaro p. 52, *progonia* Cameroon p. 54, *exolomoides* Togoland p. 55, *nigeriae* N. Nigeria p. 56, *sansibarica* Zanzibar p. 56, *rubicundula* Lake Nyasa p. 57, *transvaalensis* Transvaal p. 57, spp. n., STRAND Arch. Natg. **80** A. 12 1915.—*Allodape*, notes on African species, STRAND pp. 34-60, T.c.

Ancylosceles, redefined, COCKERELL p. 77 Ent. News **32**.—*A. videlai* = *chilensis*, p. 111, HERBST Ent. Zeitung **82**.

Andrena asterabadia Persia pp. 275, 276, *clypella*, *insula* p. 277, *paganettii* p. 278, W. A. Schulzi (with ab. n. *clypeopicta*) p. 279, *strigifrontalis* p. 281, (with s. var. n. *nettialis* p. 282), Crete, *asunica* p. 284, *kraussei* p. 285, *asuniensis* p. 286, *pseudasuniensis* p. 289, Sardinia, *catania* Catania p. 292, *bonnefoi* Transvaal p. 293, spp. n., *flore* f. *haslauica* Austria f.n. p. 290, *nana* v. *taorminae* Sicily p. 286, *propinqua* v. *syracusae* Syracuse p. 291, varr. n., STRAND Arch. Natg. **87** Abt. A. Heft 3.—*A. bipustulata*, *quadrinaculata* p. 170, *tölgiana*, *asiatica* p. 171, *furcata*, *pyrozonata* p. 172, *rufomaculata*, *regina* p. 173, *opaciventris* p. 174, spp. n., *elegans* v. *paradoxa* p. 170, *erberi* v. *sanguiniventris* p. 171, varr. n., Amanus Mts., FRIESE T.c.—

A. reticulata Cam. and *sacvissima* Cam., as one species, to *Colletes*, *phaedra* Cam. is also a *Colletes*, COCKERELL p. 367 Ann. Nat. Hist. 8.—*A. inoa* Cam., to *Halictus*, COCKERELL p. 361 T.c.—*A. beckeri* sp. n. Colorado p. 211, COCKERELL Ann. Nat. Hist. 7.—*A. nycthemera*, note on, PIGEOT pp. 45-47, Bull. Soc. Ardennes 10 1903.—*A. canea* p. 148, *candiae* p. 149, *creticola* p. 150, spp. n.; *creticola* var. n. *antennalis* p. 151; *nanana* p. 152, *caneibia* p. 153, *ocularoides* p. 155, *frevia* p. 155, spp. n. Crete, STRAND Arch. Natg. 81 A. 4 1915.—*A. jacobi* n.n. for *trimmerana* auctt., var. n. *johnsoni*, PERKINS p. 39 Ent. Mag. 57.

Anthidium albolineatum sp. n. Zululand p. 210, COCKERELL Ann. Nat. Hist. 7.—*A. auricollis* sp. n. Costa Rica p. 94, FRIESE Ent. Zeitung 82.—*A. foliivolutor* sp. n. Algeria p. 344, FERTON Ann. Soc. ent. France 89.—*A. spinolae* = *gayi* Spin. p. 104, HERBST Ent. Zeitung 82.—*A. hyperodryneroides* = *stolidoides* Spin. p. 105, HERBST T.c.—*A. cinctum* var. n. *bennigseni* German S.W. Africa p. 64, STRAND Arch. Natg. 80 A. 9 1915.

Anthophora optima sp. n. Transvaal p. 201, *oldi lusoria* subsp. n. Rhodesia p. 202, COCKERELL Ann. Nat. Hist. 7.—*A. agamoides* sp. n. Crete p. 163, STRAND Arch. Natg. 81 A. 4 1915.—*coerulea* var. n. *ella* Benguella p. 66, *torrida* var. n. *cala* Kamerun p. 66, STRAND Arch. Natg. 80 A. 9 1915.—*A. dufouri* v. *nigropyga* var. n. Persia p. 297, STRAND Arch. Natg. 87 Abt. A Heft 3.—*A. cirrhosa* = *incerta*, p. 101, HERBST Ent. Zeitung 82.—*A. lilacina* sp. n. Queensland p. 84, COCKERELL Mem. Queensland Mus. 7.

Apis mellifica, development of reproductive organs, ZANDER Zs. Angew. Ent. 3 1916 pp. 1-74.—†*A. oligocenica* sp. n. Aquitanian, Siebengebirge, p. 210, fig., MEUNIER Zs. D. Geol. Ges. 67 1915.

Augochlora caerulescens, fulgida p. 86, *auriventris* p. 87 Costa Rica, spp. n., FRIESE Ent. Zeitung 82.—*A. porteri* = *chloris* p. 111, HERBST T.c.

Augochloropsis videlai = *Halictus citricornis* p. 111, HERBST Ent. Zeitung 82.

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Bombomelecta semifulva sp. n. Colorado p. 212, COCKERELL Ann. Nat. Hist. 7.

Bombus lucorum v. *parallellus*, *pratorum* v. *fumatus* Spandau, *derhamellus* v. *ravillius* Courland varr. n. p. 167, MÜLLER Arch. Natg. 87 Abt. A Heft 2.—*B. argillaceus* ab. n. *creticola* Crete p. 167, STRAND Arch. Natg. 81 A. 4 1915.—*B. rubriventris*, type, COCKERELL p. 364 Ann. Nat. Hist. 8.—*B. pomorum*, in Britain, PERKINS p. 87 Ent. Mag. 57.

Bremus (Bombus) franklini sp. n. Arizona p. 147, FRISON Ent. News 32.

Camplopoeum jaffueli sp. n. Chili p. 9, HERBST Rev. Chil. Hist. Nat. 24.

Caupolicana interrupta = *hirsuta*, *caudens* = *gayi* p. 101, HERBST Ent. Zeitung 82.

Centris rhodophthalma = *nigerrima* p. 99, *smithii* = *chilensis* p. 109, HERBST Ent. Zeitung 82.—*C. buckholzi* sp. n. Chili p. 149, HERBST Rev. Chil. Hist. Nat. 22.

Ceratina aurata p. 87, *laticeps*, *zebra* p. 88, *nigriventris* p. 89, spp. n., Costa Rica, FRIESE Ent. Zeitung 82.

Coelioxys bilobata p. 96, *sanguinicornis* p. 97 Costa Rica, spp. n., FRIESE Ent. Zeitung 82.

Colletes porosicus sp. n. Poros p. 306, STRAND Arch. Natg. 87 Abt. A Heft 3.—*C. campoi* sp. n. Chili p. 8, HERBST Rev. Chil. Hist. Nat. 24.—*C. dudgeoni* = (*dentata* Cam.), COCKERELL p. 367 Ann. Nat. Hist. 8.—*C. (Ptilopoda) maculipennis* sp. n. Costa Rica p. 83, FRIESE Ent. Zeitung 82.

Crocisa gibba Egypt p. 90, *picea* Poros p. 99, *plumata* Mailand p. 102, *grandis* Nubia p. 141, *cyaneus* Aden p. 118, *strandii* Abyssinia, *erythraeensis* Erythraea p. 122, *proxima* Nubia p. 128, *lateralis* W. Africa p. 131, *nigroventralis* Erythraea p. 132, *formosana* Formosa p. 145, *rectangula* p. 146, *insignis* p. 151, Ceylon, *rangoonensis* p. 153, *signata* p. 158, *media* p. 160, Burma, spp. n., *nitidula* ff. n. *nicobarensis* Nicobars and *manensis* Andamans p. 162, *bimaculata* Borneo p. 163, *nitidula* v. *superba* p. 162, *affinis* v. *villosa* p. 88, *major* v. *alboscuteolata* p. 95, *ramosa* v. *albociliata* p. 98, varr. n., MEYER Arch. Natg. 87 Abt. A Heft 1.

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Dianthidium calescens sp. n. S. Africa p. 208, COCKERELL Ann. Nat. Hist. 7.

Diphaglossa occidentalis (Hal.) Brèthes = *Colletes chilensis* Spin. = *Cudegula chilensis* Recl. p. 109, HERBST Ent. Zeitung 82.—*D. tetra* (Spin.) Vach. = *Colletes occidentalis* Hal. var. p. 110, HERBST Ent. Zeitung 82.

Discoelius merula = *spinolae* Sauss. = *Epipona chilensis* Spin. p. 105, HERBST Ent. Zeitung 82.

Epeolus utahensis p. 15, *lutzi* (with new race *dimissus*) p. 16, spp. n., N. America, COCKERELL Amer. Mus. Novit. 23.—*E. metatarsalis* sp. n. Costa Rica p. 91, FRIESE Ent. Zeitung 82.—*E. cruciger* vv. *rufiventris*, *elegans* varr. n. Germany p. 168, MÜLLER Arch. Natg. 87 Abt. A. Heft 2.—*E. amabilis rhodesicus* subsp. n. p. 203, COCKERELL Ann. Nat. Hist. 7.

Eriades asiaticus sp. n. Amanus Mts. p. 175, FRIESE Arch. Natg. 87 Abt. A. Heft 3.

Eucera albofasciata var. n. *piceitricha* p. 159, *paganettii* p. 159, sp. n. Crete, STRAND Arch. Natg. 81 A. 4 1915.

Euglossa analis, type, COCKERELL p. 364 Ann. Nat. Hist. 8.

Euryglossa endeavouricola sp. n. N. S. Wales p. 269, STRAND Arch. Natg. 87 Abt. A. Heft 3.

Exomalopsis crassipes sp. n. Costa Rica p. 89, FRIESE Ent. Zeitung 82.

Gastropsis victoriae subsp. n. *rufocollaris* Australia p. 91, COCKERELL Mem. Queensland Mus. 7.

Halictus jumbo Cameroons, *surrubrescens* Costa Rica p. 272, *lenticus* Sicily p. 273, *apatellatus* Asia Minor, *aeginus* Aegina p. 309, *taorminicus* Sicily p. 310, *asiaeminoris* Asia Minor, *tinicus* Sicily pp. 311, 312, *asunicus* Sardinia pp. 311, 313, *pseudotetrazonius* Sicily p. 313, spp. n., *cariniventris* v. *creticola* var. n. Crete p. 314, *confusionis* n.n. for *kamerunensis* Friese p. 315, STRAND Arch. Natg. 87 Abt. A. Heft 3.—*H. fahringeri* sp. n. Amanus Mts. p. 169, FRIESE Arch. Natg. 87 Abt. A. Heft 3.—*H. schmidtii* sp. n. var. n. *lutescens* Costa Rica p. 84, FRIESE Ent. Zeitung 82.—*H. leucognathus* p. 825, fig. 2, *chaldaeorum* p. 826 figs. 3, 4, *amaranus* p. 827,

spp. n. Mesopotamia, MORICE J. Bombay Nat. Hist. Soc. 27.—*H. oblongatulus* p. 211, *Kirschbaumi* p. 214, spp. n., Germany, BLÜTHGEN Jahrb. Nassau. Ver. Wiesbaden 71 1919.—*H. kalutarae* v. *vincla* distinguished p. 360, *pubescens* Fr. to *Neocorynura* p. 362, COCKERELL Ann. Nat. Hist. 8.—*H. cameroni* Bingh. to *Sphecodes* p. 360, *matheranensis* Cam. = (*emergendus* Cam.), *pseudopectoralis* Cock. = (*notaticollis* Fr.) *sepositus* sp. n. Madeira p. 361, COCKERELL T.c.—*Halictus* notes on various species, BLÜTHGEN Jahrb. Nassau. Ver. Wiesbaden 71 1919 pp. 191-225.

Hylaeus scutellaris, male described, MORICE p. 824 J. Bombay Nat. Hist. Soc. 27.

Hyleoides striatula, bivulnerata, spp. n., Australia p. 81, COCKERELL Mem. Queensland Mus. 7.

Hypanthidium chionopodium sp. n. Natal p. 209, COCKERELL Ann. Nat. Hist. 7.

Lithurgus patruelis sp. n. Bulawayo p. 206, COCKERELL Ann. Nat. Hist. 7.—*L. muticus* sp. n. Chili p. 176, HERBST Rev. Chil. Hist. Nat. 22.

Megachile, the Hawaiian species, TIMBERLAKE pp. 551-556 P. Hawaii. ent. Soc. 4.—*M. kerensis* and *benguellensis* not specifically distinct p. 61, *sjöstedti* var. n. *rubripedana* Benguella p. 61, *rufiventris* var. n. *rehobothensis* German S.W. Africa p. 61, *saba* sp. n. Kamerun p. 62, *duala* sp. n. Kamerun p. 62, STRAND Arch. Natg. 80 A. 9 1915.—*M. boops* sp. n. Amanus Mts. p. 175, FRIESE Arch. Natg. 87 Abt. A. Heft 3.—*M. simplicipes, bispinosa*, spp. n., Costa Rica p. 93, FRIESE Ent. Zeitung 82.—*M. saulcyi* = *chilensis* = *praeftica* pp. 103, 104, HERBST T.c.—*M. latericauda* p. 88, *ciliatipes* p. 89, *haematogastra, mundifica* p. 90, spp. n., Australia, COCKERELL Mem. Queensland Mus. 7.—*M. bicolor* gynandromorph, Durr p. 382 pl. lvii Rep. ent. meeting Pusa 4.—*M. denticulata*, to *Gronoceras*, COCKERELL p. 367 Ann. Nat. Hist. 8.—*M. semiplea* sp. n. Madeira p. 364, *haematopus* n.n. for *rufipes* Sm. p. 365, *bicolor* = (*fletcheri* Cock.) p. 364, *lissopoda* Cam. *nigricans* Cam. & *taprobanus* Cam. to *Lithurgus* p. 365, *spinicutis* Cam. and *pulchripes* Cam.

to *Heriades* p. 366, *leptodonta* Cam. to *Osmia* p. 366, COCKERELL Ann. Nat. Hist. 8.

Melecta crassicornis sp. n. Amanus Mts. p. 176, FRIESE Arch. Natg. 87 Abt. A Heft 3.—*M. candiae* sp. n. Crete p. 166, STRAND Arch. Natg. 81 A. 4 1915.—*M. funeraria* f. *morensis* f. n. p. 3, STRAND Int. ent. Zs. 15.

†*Meliponorytes* ? *devictus* sp. n. Burmese amber, COCKERELL p. 544 f. 4, Ann. Nat. Hist. 8.

Melissa friesei sp. n. Chili p. 150, HERBST Rev. Chil. Hist. Nat. 22.

Melittoides gen. n. pp. 174, 177, *tunensis*, *vulpinus* N. Africa pp. 177–179, *rostrata* p. 174 (*rostratus* !) fig., *armenicus* W. Asia pp. 178, 180, spp. n., FRIESE Arch. Natg. 87 Abt. A Heft 3.

Morgania jonesi, *fortis*, spp. n., S. Africa p. 207, COCKERELL Ann. Nat. Hist. 7.

Nomada calloxantha p. 4, *melanoptera* p. 5, *concinna* p. 6, *carinicauda* p. 7, spp. n., *vincta* v. *heterochroa* p. 1, *alpha* v. *paralpha*, *dialpha* p. 3, *crawfordi* v. *lachrymosa* p. 5, varr. n., *N. (Gnathias) orophila* p. 8, *heterosticta* p. 9, *clarescens*, *vulpis* p. 10, spp. n., N. America, COCKERELL Amer. Mus. Novit. 24.—*N. xanthopus* sp. n. Costa Rica p. 91, FRIESE Ent. Zeitung 82.—*N. rufosoma* sp. n. Egypt p. 301, *furva* v. *atroscutellaris* var. n. Gross-Karben p. 300, STRAND Arch. Natg. 87 Abt. A Heft 3.—*N. tigridis* sp. n. Mesopotamia p. 193, MORICE J. Bombay Nat. Hist. Soc. 28.

Nomia equestris v. *smyrnensis* Smyrna, *dalyana* v. *bonnefoiensis* Transvaal varr. n. p. 316, STRAND Arch. Natg. 87 Abt. A Heft 3.—*N. aurifrons* = (*andrenina* Cock.), *zebrata* Cam. = (*frederici* Cam.), COCKERELL p. 360 Ann. Nat. Hist. 8.—*N. opposita* Sm., to *Halictus*, COCKERELL p. 361 T.c.—*N. dimissa* sp. n. p. 83, *aurantifer* subsp. n. *swainsoniae* p. 82 Australia, COCKERELL Mem. Queensland Mus. 7.

Osmia lapidistructor sp. n. La Calle p. 343, FERTON Ann. Soc. ent. France 89.—*O. ononidis*, ♂, BENOIST p. 250 Bull. Soc. ent. France 1921.—*O. mea* loc. unknown p. 303, *cataniae* Catania p. 321, spp. n., STRAND Arch. Natg. 87 Abt. A Heft 3.—*O. forficulina* sp. n. Basutoland p. 202, COCKERELL Ann.

Nat. Hist. 7.—*O. xanthomelana*, biology, ENSLIN p. 127 Zs. Wiss. Insektenbiol. 16.

Oxybelus monachus, description of male, p. 51, MEYER Ent. Mitt. 10.

Palaeorhiza viridifrons sp. n. Australia p. 86, COCKERELL Mem. Queensland Mus. 7.

Panurgus dentatus v. *taorminensis* Sicily p. 294, *vachali* v. *villosiclypeus* Algeria p. 318, varr. n., STRAND Arch. Natg. 87 Abt. A Heft 3.

Paracolletes chalcursus, *boroniae* p. 92 *regalis*, *facialis* p. 93, *plebeius*, *incomptus*, *recusus*, *apicalis* p. 94, *speculiferus*, *nomadiformis* p. 95, *aurescens*, *fallax* p. 96, *scitulus* p. 97, spp. n. Australia, and key to spp. COCKERELL Mem. Queensland Mus. 7.

Parapsaenythia costaricensis sp. n. Costa Rica p. 83, FRIESE Ent. Zeitung 82.

Polyglossa heterodoxa p. 204, *peringueyi* p. 205, spp. n. S. Africa, COCKERELL Ann. Nat. Hist. 7.

Prosopis sulcifrons p. 51, *innocens* p. 52, spp. n. New Zealand, CAMERON Mem. Manchester Soc. 42 1898 No. 1.—*P. maderensis* sp. n. Madeira p. 363, COCKERELL Ann. Nat. Hist. 8.—*P. mixta* Sm., to *Allodape*, COCKERELL p. 363 T.c.—*P. trivittata* var. n. *maculosa*, *maculata* p. 81, *ruficollis*, *callosa* p. 82 spp. n. Costa Rica, FRIESE Ent. Zeitung 82.—*P. sculptifrons* p. 84, *certa*, *daveyi* p. 85 spp. n. and key to species and allied species p. 86, COCKERELL Mem. Queensland Mus. 7.—*P. asiaeminoris* sp. n. Asia Minor p. 267, STRAND Arch. Natg. 87 Abt. A Heft 3.—*P. creticola* sp. n. Crete, STRAND p. 146, Arch. Natg. 81 A. 4 1915.

Psithyrus, varr. in Britain, PERKINS pp. 82–86 Ent. Mag. 57.—*P. laboriosus*, in nest of *Bremus pennsylvanicus*, FRISON p. 100 Canad. Ent. 53.

Ptilothrix riparia Ducke, to *Diadasia*, COCKERELL p. 77 Ent. News 32.

Rivalisia gen. n. *metallica* sp. n. Usambara p. 270, STRAND Arch. Natg. 87 Abt. A Heft 3.

Sphecodes puncticeps v. *cretanus* var. n. Crete p. 305, STRAND Arch. Natg. 87 Abt. A Heft 3.—*S. hemirhodurus* sp. n.

S. Africa p. 208, COCKERELL Ann. Nat. Hist. 7.—*S. kershawi* China p. 9, *abnormis* East Indies p. 10, *spp. n.*, PERKINS Ent. Mag. 57.—*S. iridescens* n.n. for *cameroni* Sch., COCKERELL p. 360 Ann. Nat. Hist. 8.

Stelis gigantea *sp. n.* Amanus Mts. p. 175, FRIESE Arch. Natg. 87 Abt. A Heft 3.—*S. costaricensis* *sp. n.* Costa Rica p. 95, FRIESE Ent. Zeitung 82.—*S. (Anthidium?) calcarata* *sp. n.* Costa Rica p. 96, FRIESE T.c.

Stenotritus elegantior *sp. n.* Queensland p. 91, COCKERELL Mem. Queensland Mus. 7.

Synepeolus subgen. *n.* vide *Triepeolus*.

Tetralonia melanura = *mucida*, p. 103, HERBST Ent. Zeitung 82.

Tetrapedia dentiventris p. 90, *albitalarsis*, p. 91 *spp. n.* Costa Rica, FRIESE Ent. Zeitung 82.

Triepeolus fortis p. 3, *schwarzi* p. 4, *balteatus*, *rhododontus* p. 5, *brunneus*, *trilobatus* p. 7, *perelegans*, *sequior* p. 8, *rectangularis* p. 9, *amandus* p. 10, *lestes*, *dichropus*, *maculiventris* p. 11, *laticaudus* p. 12, *alpestris* p. 13, (*Synepeolus* subgen. *n.*) *insolitus* p. 6, *spp. n.* N. America, COCKERELL Amer. Mus. Novit. 23.

Trigona nebulata var. *n. delimbata* Kamerun p. 67, STRAND Arch. Natg. 80 A. 9 1915.

Xylocopa varipes var. *n. melanotrichia* Kamerun p. 64, STRAND Arch. Natg. 80 A. 9 1915.—*X. (Koptotosoma) duala* *sp. n.* Cameroons p. 319, STRAND Arch. Natg. 87 Abt. A Heft 3.

DIPLOPTERA (VESPIDAE, ETC.).

Histology of leg and wing muscle of the wasp, etc., pp. 1-66, JORDAN Amer. J. Anat. 27.

Circulation of the blood, *Vespa*, BROCHER pp. 209-232 Ann. Soc. ent. France 89.

Ancistrocerus trifasciatus F., biology, p. 284, ENSLIN D. ent. Zs. 1921.

Eumenes alluaudi, redescribed, BEQUAERT pp. 160-164, figs. Psyche 28.

Masaris vespiformis nest, FERTON pp. 372-374 Ann. Soc. ent. France 89.—*Masaris saussurei* *sp. n.* Turkestan p. 449, CARL Rev. Suisse Zool. 28.

Nortonia deceptrix *sp. n.* Mesopotamia p. 201 figs., MORICE J. Bombay Nat. Hist. Soc. 28.

Odynerus vespiformis = *hirsutulus* Spin. = *mutilloides* Grib. p. 106, *mapochu* = *coarctatus* p. 107, HERBST Ent. Zeitung 82.—*O. (Ancistrocerus) fukaianus*, description of ♂ p. 200, SCHULTHESS Ent. Mitt. 10.

Polistes bequaerti p. 123, *madiburensis* p. 124, *spp. n.*, *smithii* var. *neavei* var. *n.* p. 126, Africa, SCHULTHESS Ent. Mitt. 10.

†*Polybia?* *anglica* *sp. n.* Oligocene Isle of Wight p. 20 f. 23, COCKERELL Ann. Nat. Hist. 7.—†*P. oblita* *sp. n.* Oligocene Isle of Wight, COCKERELL p. 545 f. 5 Ann. Nat. Hist. 8.

Symmorphus sinuatus F. biology, p. 279, ENSLIN D. ent. Zs. 1921.

Vespa arctica a parasite of *V. diabolica*, WHEELER & TAYLOR pp. 135-144 pls. vi., vii., Psyche 28.—*V. cincta*, insect-eating habits, DOVER p. 960, fig. J. Bombay Nat. Hist. Soc. 27.

FOSSORIA (SPHEGIDAE, ETC.).

List Macedonian Fossoria, BERLAND p. 531 Bul. Muséum Paris 1921.

Notes on and descriptions of Oriental and Palaearctic *Crabronidae*, STRAND pp. 88-97, Arch. Natg. 81 A.5 1915.

Sphegidae of Belgium, keys to, pp. 139-166, DUBOIS Bull. soc. ent. Belg. 3.

Nyssoninae, the North-American genera, ROHWER pp. 403-413 P.U.S. Mus. 59.

Indian Sphecoidea, TURNER & DUTT pp. 173-205 Mem. Dept. Agric. Ind. Ent. Ser., Calcutta, 5 1917.

Solitary wasps, notes on 4 Sudan *spp.* pp. 87-105 figs., MELLOR Sudan Notes and Rec. 4.

Mutillidae of the Government of Petrograd, BAROVSKY Faunae Petropolitanae Catalogus 2 No. 9.

Modification of instinct in Fossoria, pp. 449-459, BOUVIER Scientia 27.

Agenia huttoni *sp. n.* New Zealand p. 49, CAMERON Mem. Manchester Soc. 42 1898 No. 1.

Ammophila dives var. n. *orichalceomicans* Cyclades p. 96, *laevigata* ab. n. *bicellulalis* Ceylon p. 97, STRAND Arch. Natg. 81 A.5 1915.—*A. nasuta* variation, pp. 15-16, 86-87, ROTH Bul. Soc. Hist. Nat. Alger 11 1920.

Ammophila, paralyzing by, NIELSEN p. 323 Ent. Medd. 13.

Arpactus (Hoplisoides) remotus p. 182, *A. (Dienophus) vividus* p. 183, spp. n. Punjab, TURNER Mem. Dept. Agric. Ind. Ent. Ser., Calcutta 5 1917.

Batazonus flavipennis sp. n. N. America p. 20, BANKS Ann. Ent. Soc. Amer. 14.

Bembex persimilis p. 179, *relegatus* p. 180, spp. n. Punjab, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—*B. mediterranea*, prey, p. 130, ROTH Bul. soc. hist. nat. Alger 12.

Blepharipus parkeri sp. n. Massachusetts p. 17, BANKS Ann. Ent. Soc. Amer. 14.

Campsomeris (Campsomeris) aurulenta var. p. 89, ROHWER Philippine J. Sci. 19.

Cerastotizus gen. n. p. 412 type *Gorytes moneduloides* Pack., ROHWER P.U.S. Mus. 59.

Cerceris, species of, in Finland, SHESTAKOV p. 410, Rev. Russe Ent. 16 1917.—*C. bicava* Erythraea p. 316, *speculata* Senegal p. 317, spp. n., SHESTAKOV T.c.—*C. rejecta* sp. n. Bihar p. 177, *renominata* nom. n. for *opulenta* Turner p. 178, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—*C.* spp. of pp. 107-125, *fluxa* p. 112, Algiers, *accola* p. 115, *fragosa* p. 116, *ignaruris* p. 118, *supposita* p. 122 Transcaspiia, spp. n., KOHL Arch. Natg. A 81 H.7 1915.

Chalybion sceliphron, distinguished, ROHWER p. 27 Ent. News. 32.

Crabro nanus removed to *Entomognathus*, TURNER p. 185, Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—*C. (Rhopalum) jocosus* sp. n. New Zealand p. 43, CAMERON Mem. Manchester Soc. 42 1898 No. 1.

Dasymutilla alesia sp. n., *cypris* v. *interrupta* var. n., Virginia p. 24, with key to Eastern spp. and notes, BANKS Ann. Ent. Soc. Amer. 14.

Dasyproctus funestus sp. n. Bihar p. 188, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Dimorpha (olim *Astata*) *fletcheri* sp. n. Bihar p. 193, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Dinctus cereolus ssp. n. *politus* Bihar p. 195, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Diodontus scutatus p. 310, *bakeri* p. 312, *luzonensis* p. 313, *multipictus* p. 314, *tuberculifrons* p. 315, *maurus* p. 316, *philippinensis* p. 317, *basilanensis* p. 318, *luteopictus* p. 319, *ajax* p. 320, spp. n. Philippine Is. and key to species p. 310, ROHWER Philip. J. Sci. 18.—*D. fletcheri* sp. n. Nilgiri Hills p. 175, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Entomognathus memorialis sp. n. Virginia p. 16, BANKS Ann. Ent. Soc. Amer. 14.—*E. chapraensis* p. 185, *isolatus* p. 186, spp. n. Bihar, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Gorytes ornatus re-described, p. 204, DUTT Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Larra fuscipennis synonymous with *simillima* p. 195, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Larropsis distincta v. *semirufa* var. n. Massachusetts p. 19, BANKS Ann. Ent. Soc. Amer. 14.

Lindenius wenonah sp. n. California p. 16, BANKS Ann. Ent. Soc. Amer. 14.

Lophopompilus carolinus sp. n. N. Carolina p. 20, BANKS Ann. Ent. Soc. Amer. 14.

Mimesa (Mimesa) brevis Asia Minor p. 169 figs. 1-3, *pannonica* Hungary p. 171 figs 4-5, *vindobonensis* Vienna p. 171 fig. 6, spp. n., MAIDL Arch. Natg. 80 A. 3 1914.—*M. (Aporia) caucasica* sp. n. Transcaucasia p. 172 figs. 7-8, MAIDL Arch. Nat. 80 A. 3 1914.

Mutilla carsoni Lake Tanganyika p. 1, *aegrola* Transvaal p. 2, spp. n., CAMERON Mem. Manchester Soc. 42 1898 No. 2.

Nomiaephagus oculatus sp. n. Georgia p. 24, BANKS Ann. Ent. Soc. Amer. 14.

Nysson dubitatus male described p. 184, *dutti* sp. n. Bihar p. 184, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—†*N. rottensis* sp. n. Aquitanian, Siebengebirge p. 212 fig., MEUNIER Zs. D. Geol. Ges. 67 1915.—*N. (Zanysson* subg. n.) *plesia* p. 406, *N. (Foxia) secunda* p. 407, *N. (N.) marlatti, minimus* p. 408, *N. (Brachystegus) foxii* p. 409, *barberi* p. 410, spp. n., U. S., *opulentus* var. n. *dakotensis* p. 411, ROHWER P.U.S. Mus. 59.

Notogonia nigra synonymy p. 196, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Oxybelus carolinus sp. n. N. Carolina p. 18, BANKS Ann. Ent. Soc. Amer. 14.—*O. nigrilulus* Assam p. 189, *furcifer* Bihar p. 191, *transiens* Bihar p. 191, *O. (Nologlossa) linguifera* Punjab p. 193, spp. n., *sabulosus* synonymous with *agilis* p. 190, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Pedinaspis mariae v. *antennalis* var. n. Virginia p. 21, BANKS Ann. Ent. Soc. Amer. 14.

Pelepaeus spirifex L. anomalie dans la nervation p. 140, ROTH Bull. soc. hist. nat. Alger 11 1920.

Pepsis novitia, arizonica spp. n., N. America p. 21, BANKS Ann. Ent. Soc. Amer. 14.—*P. stella* p. 205 pl. iv f. 3, *elisa* p. 208 f. 2, *magnifica* p. 212 f. 4, Guiana, *brethesi* p. 216 f. 1, S. Amer. spp. n., MONTET Rev. Suisse Zool. 28.

Philanthus carolinensis v. *reductus* var. n. N. Carolina p. 18, BANKS Ann. Ent. Soc. Amer. 14.—*P. sumptuosus* sp. n. Bihar p. 178, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—*P. flavolineatus* subsp. n. *eritreanus* Erythrea, BISCHOFF p. 156 Arch. Nat. 81 A. 3 1915.

Pison pruinosus sp. n. New Zealand p. 44, CAMERON Mem. Manchester Soc. 42 1898 No. 1.

Psammochares eurydice p. 19, *sublaevis* p. 20, spp. n., N. America, BANKS Ann. Ent. Soc. Amer. 14.

Psen politiventris, melanosoma, aureohirta, spp. n., Philippines, and key to species p. 321, ROHWER Philip. J. Sci. 18.

Psenulus taihorinus p. 20, *formosicola* p. 21, spp. n., FORMOSA, STRAND, Arch. f. Naturg. 81 A Heft 7 1915.

Pseudagenia floridana sp. n. Florida p. 21, BANKS Ann. Ent. Soc. Amer. 14.

Rhopalum iridescens sp. n. Kashmir p. 187, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—*R. (Alliognathus) carolina* sp. n. N. Carolina p. 17, BANKS Ann. Ent. Soc. Amer. 14.

Salix triangularis sp. n. New Zealand p. 48, CAMERON Mem. Manchester Soc. 42 1898 No. 1.—*S. exaltatus* var., PERKINS p. 40 Ent. Mag. 57.

Sceliphron deforme habits, BASIL-EDWARDES pp. 293–297 figs. J. Bombay Nat. Hist. Soc. 28.—*S. deforme* nest, STRAND, pp. 116–117, Arch. Natg. 80 A. 10 1915.—*S. horni* Ceylon p. 91, *taprobanense* Ceylon p. 93, *sintangense* Borneo p. 94, spp. n., STRAND Arch. Natg. 81 A. 5 1915.—†*Sceliphron ? brevior* sp. n. Oligocene Isle of Wight p. 20 f. 24, COCKERELL Ann. Nat. Hist. 6.

Scolia (Triscolia) philippinensis pp. 76, 77, *bella* pp. 76, 78, *bellina* pp. 76, 80, (*Scolia*) *megacephala* pp. 76, 82, *propodealis* pp. 76, 83, *luzonensis* pp. 76, 84, *incerta* pp. 76, 85, spp. n., Philippine Is., ROHWER Philippine J. Sci. 19.

Solierella turneri sp. n. Bihar p. 205, DUTT Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Sphex umtalicus sp. n. Rhodesia p. 105, *ichneumoneus* v. *ignota* Colombia p. 99, *pensylvanicus* v. (?) *robustisoma* (patria ignota) p. 101, *xanthoceros* v. *kigonsera* Germ. E. Afr. p. 103, *bohemanni* v. *camerunicus* Cameroons p. 105, *nigripes* v. (?) *pachyderma* Germ. E. Afr. p. 106, n. v. *celebesianus* Tsingtau p. 107, varr. n., STRAND Arch. Natg. 81 Abt. A. Heft 11.—*S. thunbergi* = *latreillei* p. 107, HERBST Ent. Zeitung 82.—*S. nigelloides* sp. n. Ceylon, STRAND p. 88, Arch. Natg. 81 A. 5 1915.

Spilomena chilensis sp. n. Chili p. 35, HERBST Rev. Chil. Hist. Nat. 24.

Stenomutilla argentata var. n. *saundersivora* p. 359, FERTON Ann. Soc. ent. France 89.

Stigmus aterrimus sp. n. Nilgiri Hills p. 174, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—*S. glabratus* sp. n. Chili p. 35, HERBST Rev. Chil. Hist. Nat. 24.

Stizus erythrogaster sp. n. Bihar p. 181, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Tachysphex substriatulus Punjab p. 197, *tilliputianus* Bihar p. 198, *latissimus* Bihar p. 199, spp. n., TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—*T. maneei* sp. n. N. Carolina p. 19, BANKS Ann. Ent. Soc. Amer. 14.

Tachytes habits, PARKER pp. 103–107 P. ent. Soc. Washington 23.—*T. comberi* Karachi p. 201, *celsissimus* Assam p. 202, spp. n., TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.—*T. erythropoda* removed to *Parapiagetia* p. 196, TURNER T.C.—*T. pennsylvanica* sp. n. Pennsylvania p. 18, BANKS Ann. Ent. Soc. Amer. 14.

Thyreopus rufbasis sp. n. Florida p. 17, BANKS Ann. Ent. Soc. Amer. 14.

Trypoxylon, note on, PIGEOT pp. 62–65 Bull. Soc. Ardennes 9 1902.—*T. nodosicornis* sp. n. N. India p. 203, TURNER Mem. Dept. Agric. Ind. Ent. Ser. Calcutta 5 1917.

Zanysson subg. n. type *Nysson texanus* Cress., ROHWER p. 404 P.U.S. Mus. 59.

FORMICIDAE.

Chinese ants, WHEELER, pp. 110–115, figs. Psyche 28.

The ants of the Fiji Islands, MANN Bull. Mus. Harvard 64 pp. 399–499 38 figs.

Observations on ants at Belalp, STÄGER pp. 188–203, Mitt. Ges. Bern. 1919 1920.

The psychology of ants, HEYDE pp. 259–281, figs. 1–9 Arch. Néerlandaises 4 1920.

The psychical capacity of ants, ERNST pp. 37–55, figs. Jahrb. Nassau. Ver. Wiesbaden 69 1916.

The genera of the sub-fam. *Myrmicinae*, with lists of the species, EMERY Gen. Ins. 174A pp. 1–94 pls. i–vii.

Les facteurs du polymorphisme du sexe féminin chez les fourmis pp. 737–741, EMERY Rev. gén. sci. 32.

Acanthomyops niger mermithogynes p. 60, DONISTHORPE Proc. ent. soc. London 1920 (1921).

Acromyrmex octospinosa var. n. *pallida* Guiana, CRAWLEY p. 92 Ann. Nat. Hist. 7.

Adelomyrmex (*Arctomyrmex* subg. n. p. 457) *hirsutus* sp. n. Fiji Islds. p. 458, MANN Bull. Mus. Harvard 64.

Aphaenogaster geei p. 535, *exasperata* p. 537, spp. n. China, WHEELER Bull. Mus. Harvard 64.

Archaeomyrmex gen. n. p. 448 trib. n. *Archaeomyrmecini*, *cucabau* sp. n. Fiji Islds. p. 449, MANN Bull. Mus. Harvard 64.

Arctomyrmex subg. n. vide *Adelomyrmex*.

Calyptomyrmex becarii v. *glabratus*, nov. p. 128 Singapore, VIEHMEYER Arch. Natg. A. 81 H. 8 1915.

Camponotus the subgenera, *Myrmisolepsis*, *Myrmopelta* p. 210, *Myrmoplatypus* p. 211, *Myrmepinotus* p. 212, subgenn. n., SANTSCHI Ann. Soc. ent. Belgique 61.—*Camponotus* Emery's subgenera, WHEELER pp. 16–19 Psyche 28.—*C. troglodytes* st. n. *assumptionis* Aldabra p. 95, *suffusus bendigensis* ♂ p. 96, CRAWLEY Ann. Nat. Hist. 7.—*C. laminatus* var. n. *levuanus* p. 479, *cristatus* var. n. *nagasau* and subsp. n. *sadina*, *C. (Myrmegonia) maaful* p. 482, *schmetzii* var. n. *kadi* p. 485 and *lolola* p. 486, subsp. n. *trotteri* p. 486, *lauensis* sp. n. p. 488, *C. (Colobopsis) vitiensis* p. 490 sp. n. *mayriella* n.n. for *carinata* Mayr. p. 494, *maudella* sp. n. p. 496 with var. *seemanni* p. 497, *janus* sp. n. p. 498, Fiji Islds., MANN Bull. Mus. Harvard 64.—*C. nylanderi* nom. n. for *pallens* Nylander p. 25, EMERY Psyche 28.—*C. sylvaticus* varr. n. *kairouana* p. 72, *tunetica*, *algorica* p. 73, *compressus* varr. n. *saharensis*, *probaduris* p. 73, *nigrithorax* p. 74, *meningensis* p. 75, SANTSCHI Bul. soc. nat. hist. Alger. 12 1921.—*C. (Myrmoturba) subnudus* v. *obfuscata* nov. p. 154, *tinctus*, v. *carinifer* nov., *C. (Myrmotarsus) nigricans* subsp. *nitidiceps* nov. p. 156, *C. (Myrmomalis) hospes* subsp. *adultus* nov., *C. (Myrmamblys) moeschi* v. *lygaea*, nov. p. 157, *bedoti* subsp. *sericellus* nov. p. 158, *bellus* subsp. *adustus* nov. p. 159, *ephippiatus* sp. n. p. 160, *C. (Colobopsis) pilosus* subsp. *gracilentus* nov. p. 161, *C. (Myrmosphincta) dolichoderoides* subsp. *overbecki* nov. p. 162

Singapore, VIEHMEYER Arch. Natg. 81 Abt. A. Hft. 8 1915.—*C. (Colobopsis) laotsei* sp. n. China p. 545, WHEELER Bull. Mus. Harvard 64.

Cataglyphis albicans ergatandromorph p. 76, SANTSCHI Bul. soc. hist. nat. Alger 12.

Cerapachys vitiensis p. 406 with subsp. *sculpturatus*, *majusculus*, *C. (Syscia) cryptus* p. 407 with subsp. *fuscior* p. 410, spp. n., Fiji Islds., MANN Bull. Mus. Harvard 64.

Corynomyrme subg. n. of *Monomorium* p. 134, VIEHMEYER Arch. Naturg. 81 A Hft. 8 1915.

Cremastogaster sordidula st. n. *marocana* p. 70, *auberti* st. *laestrygon* varr. n., *surcoufi*, *normandi*, *vaucheri*, st. n. *theryi* p. 71, *aegyptiaca* var. n. *saharensis* p. 72, Morocco, SANTSCHI Bull. soc. nat. hist. Alger. 12.—*C. spengeli* subsp. *taipengensis* v. *picata* nov. p. 125, *C. (Decacrema) borneensis*, subsp. *hosei*, v. *tubuli*, nov. p. 126, Singapore, VIEHMEYER Arch. Naturg. A 81 Hft. 8 1915.—*C. (Sphoerocrema) phoenix* p. 116, *C. (Acrocoelia) viehmeiyeri* p. 117, spp. n., Africa, *C. solenopsoides* var. n. *poststriata*, *africana* st. n. *thoracica* p. 118, SANTSCHI Ann. soc. ent. Belgique 61.

Dilobocondyla cataulacoidea v. *fulva*, nov. p. 127 Singapore, VIEHMEYER Arch. Naturg. A 81 Hft. 8 1915.

Dolichoderus (Hypoclinea) sinensis sp. n. Canton p. 111 fig., WHEELER Psyche 28.

Dorylus kohli var. n. *victoriae* p. 115, SANTSCHI Ann. Soc. ent. Belgique 61.

Electropheidole subg. n. vide *Pheidole*.

†*Eoformica* gen. n., *eocenica* sp. n. Eocene Colorado p. 38 pl. viii f. 11, COCKERELL P.U.S. Mus. 59.

Euponera sennaatensis var. n. *decolor* p. 114, SANTSCHI Ann. Soc. ent. Belgique 61.

Formica specific names repeated in the Linnean genus, EMERY pp. 24–26 Psyche 28.—*F. rufa* giant nests pp. 148–150 2 plates, THIENEMANN Jahresb. Prov. Ver. Wiss. Münster 43.—†*F. bauckhorni* sp. n. Aquitanian Sieben-gebirge p. 214 fig., MEUNIER Zs. D. Geol. Ges. 67 1915.

Formicoxenus nitidulus Nyl. morphology, physiology, ethology, pp. 90–97, STUMPER Bull. ent. soc. Belg. 3.

Gesomyrmex howardi sp. n. Canton p. 112 fig., WHEELER Psyche 28.

Harpagoxenus sublevis distribution and biology pp. 269–278, VIEHMEYER Biol. Centralbl. 41.

Iridomyrmex sororis p. 469, *nagasau* p. 470 with subspp. *alticola* and *agnatus* p. 472, spp. n. *anceps ignobilis* subsp. n. p. 472, Fiji Islds., MANN Bull. Mus. Harvard 64.—*I. obscurus* sp. n. Australia p. 92, CRAWLEY Ann. Nat. Hist. 7.

Lasius fuliginosus observations sur la genèse d'une piste du, pp. 84–88, STUMPER Bull. soc. ent. Belg. 3.

Leptogenys conigera st. n. *exigua*, CRAWLEY p. 89 Ann. Nat. Hist. 7.—*L. (Lobopelta) letilae* p. 419, *foveopunctata*, *humiliata* p. 421, *fugax* p. 422, *navia* p. 423, *vitiensis* p. 424, spp. n., Fiji Islds., MANN Bull. Mus. Harvard 64.

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Meranoplus aureolus sp. n. Australia p. 91, CRAWLEY Ann. Nat. Hist. 7.

Messor barbarus st. *minor* var. n. *picturata* Algeria p. 69; st. n. *abdelazizi* Morocco p. 70, SANTSCHI Bull. Soc. hist. nat. Alger. 12.

Monomorium vitiensis sp. n. Fiji Islds. p. 444, MANN Bull. Mus. Harvard 64.—*M. strangulatum* sp. n. E. Africa p. 121, SANTSCHI Ann. Soc. ent. Belgique 61.—*M. butteli* subsp. *demochrum* nov. p. 131, *M. (Corynomyrme) n. subg.) hospitum* sp. n. p. 133 Singapore, VIEHMEYER Arch. Naturg. 81 A Hft. 8 1915.

Myrmecia rufonigra sp. n. Queensland p. 87, CRAWLEY Ann. Nat. Hist. 7.

Myrmecina graminicola sinensis subsp. n. p. 539, WHEELER Bull. Mus. Harvard 64.

Myrmepinotus subg. n. vide *Camponotus*.

†*Myrmica archaica* sp. n. Aquitanian, Siebengebirge, p. 212 fig., MEUNIER Zs. D. Geol. Ges. 67 1915.

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Odontomachus angulatus, ♀ p. 427, f. 11, MANN Bull. Mus. Harvard 64.—*O. monticola pauperculus* subsp. n. N. China, WHEELER p. 530. T.c.—*O. ruficeps*, ♂, CRAWLEY p. 90 Ann. Nat. Hist. 7.

Oligomyrmex overbecki sp. n. Singapore p. 136, VIEHMEYER Arch. Natg. 81 A. Hft. 8 1915.

Overbeckia gen. n. p. 151, *subclavata* sp. n. p. 152, Singapore, VIEHMEYER Arch. Natg. 81 A. Hft. 8 1915.

Pachycondyla (*Ectomomyrmex*) *overbecki* sp. n. Singapore p. 113, VIEHMEYER Arch. Natg. A 81 Hft. 8 1915.

Pheidole onifera p. 429, *vatu* p. 431, *wilsoni* p. 433, *caldwelli* p. 434, spp. n. Fiji islds., *knowlesi extensa* subsp. n., *P. (Electropheidole subg. n.) roosevelti* p. 438, *colaensis* p. 441 spp. n. Fiji islds., MANN Bull. Mus. Harvard 64.—*Ph. dea* sp. n. Congo p. 115, *berthoudi* var. n. *particeps*, *excellens* var. n. *fulvobasalis*, p. 116, SANTSCHI Ann. Soc. ent. Belgique 61.—*Ph. inscrobiculatus* sp. n. Singapore p. 120, VIEHMEYER Arch. Natg. A 81 Hft. 8 1915.

Pheidologeton vespillo sp. n. China p. 533, WHEELER Bull. Mus. Harvard 64.

Phyracaces singaporensis sp. n. Singapore p. 110, VIEHMEYER Arch. Natg. A 81 Hft. 8 1915.

Plagiolepis foreli sp. n. Fiji islds. p. 473, MANN Bull. Mus. Harvard 64.—*P. pygmaea* varr. n. *madeirensis* and *pyrenaica* p. 315 figs., *intermedia* var. n. *minutus* p. 316 figs., *simoni* sp. n. S. Africa p. 317 figs., *rothneyi sundaica* subsp. n. p. 318, EMERY Ann. Soc. ent. Belgique 61.—*P. rothneyi* subsp. *splendida* nov. Singapore p. 146, VIEHMEYER Arch. Natg. A 81 H. 8 1915.

Platythyrea pusilla var. *egena*, nov. Singapore p. 111, VIEHMEYER Arch. Natg. A 81 Hft. 8 1915.

Poecilomyrma gen. n. p. 445 near *Podomyrma*, *senirewae* p. 446 with subsp. *myrmecodiae* p. 448 sp. n. Fiji islands, MANN Bull. Mus. Harvard 64.

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Prenolepis subtilis st. n. *termitophila*, SANTSCHI p. 122 Ann. Soc. ent. Belgique 61.—*P. (Nylanderia) emmae*, redescribed, WHEELER p. 542 Bull. Mus. Harvard 64.—*P. (Nylanderia) vitiensis* p. 474, *oceanica* p. 476, spp. n. Fiji islds., MANN. T.c.—*P. (Nylanderia) butteli*, subsp. *malaccana*, nov. p. 147, Singapore, VIEHMEYER Arch. Natg. 81 A. Hft. 8 1915.

Pristomyrmex mandibularis sp. n. Fiji islds. p. 444, MANN Bull. Mus. Harvard 64.

Proceratium relictum sp. n. Fiji islds. p. 413, MANN Bull. Mus. Harvard 64.

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Rhizomyrma marshalli sp. n. Barbadoes p. 93, CRAWLEY Ann. Nat. Hist. 7.

Rhopalothrix elegans sp. n. Fiji islds. p. 467, MANN Bull. Mus. Harvard 64.

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Sima (Tetraponera) fulva sp. n. Singapore p. 117, VIEHMEYER Arch. Natg. A 81 Hft. 8 1915.

Solenopsis overbecki sp. n. Singapore p. 135, VIEHMEYER Arch. Natg. 81 Abt. A Hft. 8 1915.

Solenopsis cleptes var. n. *vitiensis* p. 444, MANN Bull. Mus. Harvard 64.—*S. soochowensis* sp. n. China p. 531, WHEELER. T.c.

Stenamma westwoodi, nest, PHILLIPS Irish Nat. 30 pp. 125–127.

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Technomyrmex albipes v. *cordiformis* nov., *T. schimmeri*, sp. n. Singapore p. 143, VIEHMEYER Arch. Natg. 81 A Hft. 8 1915.—*T. albipes* var. n. *vitiensis* p. 473, MANN Bull. Mus. Harvard 64.

Tetramorium pacificum var. n. *wilsoni* p. 460, MANN Bull. Mus. Harvard 64.—*T. setigerum* var. n. *anteversa*, SANTSCHI p. 121 Ann. Soc. ent. Belgique 61.—*T. obtusidens* sp. n. Singapore p. 138, VIEHMEYER Arch. Natg. 81 A Hft. 8

1915.—*T. exasperatum* var. n. *acutiseta* Morocco, SANTSCHI p. 72 Bull. Soc. hist. nat. Alger 12.

Theryella gen. n. *myops*, sp. n. Morocco, SANTSCHI p. 68 Bull. Soc. hist. nat. Alger. 12.

Triglyphothrix pacifica sp. n. Fiji islds. p. 460, MANN Bull. Mus. Harvard 64.

Vollenhovia brevicornis subsp. *minuta* nov., *overbecki* sp. n. p. 129 Singapore, VIEHMEYER Arch. Natg. 81 A Hft. 8 1915.

Wheeleripone aterrima sp. n. Fiji islds. p. 411, MANN Bull. Mus. Harvard 64.

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Chrysidae, synonymy of several species, TRAUTMANN pp. 103–106 Notulae Ent. 1.

Chrysis buxtoni sp. n. Mesopotamia p. 202, figs., MORICE J. Bombay Nat. Hist. Soc. 28.

Hedychridium hilare sp. n. Mesopotamia p. 201, MORICE J. Bombay Nat. Hist. Soc. 28.

Stilbum cyanurum subsp. n. *luzonensis*, Philippine Is. p. 692, and synonymy of named forms p. 691, ROHWER Phil. J. Sci. 18.

ICHNEUMONIDAE.

List of *Ichneumonidae* parasitic on pests of grain, p. 10, figs., WATERSTON Royal Soc. Reports Grain Pests Committee No. 9.

Supplement to the list of genera of *Ichneumon*-flies to 1919, with designation of types and much synonymy, VIERECK P.U.S. Mus. 59 pp. 129–150.

Synonymical revision of the *Ichneumonidae* of Say, CUSHMAN & GAHAN pp. 153–171 P. ent. Soc. Washington 23.

Pimplinae, keys to the Palaearctic tribes, genera of *Pimplini*, and tables for European spp. of *Pimpla*, SCHMIEDKNECHT Zs. angew. Ent. 1 1914 pp. 396–478.

Types of *Gravenhorst* continued, FRANKUOH D. ent. Zs. 1921 pp. 224–246.

Die Schmarotzerwespen (Schlupfwespen) als Parasiten, STELLWAAG Monog. zur angew. Ent. Nr. 6 1921.

†*Acourtia* gen. n. near *Macrogastr*,
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†*Coleocentrus gurnetensis* sp. n. Oligo-
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Henicospilus rufoides nom. n. for
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†*Itopectis saxosus* sp. n. Oligocene Isle of Wight p. 7 f. 5, COCKERELL Ann. Nat. Hist. 7.

Labrorychus aestivalis sp. n. Virginia p. 79, VIERECK Psyche 28.

†*Lampromota disrupta* sp. n. Oligocene Isle of Wight p. 10 f. 9, COCKERELL Ann. Nat. Hist. 7.

Limneria zealandica sp. n. New Zealand p. 36, CAMERON Mem. Manchester Soc. 42 1898 No. 1.

Liotheronia aurimicans sp. n. Bolivia p. 46, ENDERLEIN Ent. Zeitung 82.

Lissonota tinctipennis sp. n. New Zealand p. 28, CAMERON Mem. Manchester Soc. 42 1898 No. 1.

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Megarhyssa, mating habits, p. 291, BARLOW Ent. News 32.—*M. atrata*, mating, CHAMPLAIN p. 241 Ent. News 32.

Meniscus transversostriatus sp. n. Holland p. 300, SMITS VAN BURGST Ent. Ber. Helder 5.

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Microcryptus rubi sp. n. Germany p. 82, HABERMEHL D. ent. Zs. 1921.

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Nemeritis canescens, anatomy pp. 58–67 KRÜGER Zs. angew. Ent. 7 1921.

Neomesostenus manaoensis sp. n. Manaos p. 27, BRÊTHES Rev. Chil. Hist. Nat. 23.

Neopristomerus woodworthi sp. n. California p. 172, VIERECK Ent. News 32.

Nototrachys levipectus sp. n. Brazil p. 42, ENDERLEIN Ent. Zeitung 82.

Ophion punctatus sp. n. New Zealand p. 34, CAMERON Mem. Manchester Soc. 42 1898 No. 1.—*O. geyri* sp. n., *picta* f. n. Algeria p. 266, HABERMEHL D. ent. Zs. 1921.

Opius vittatus sp. n. Mähren p. 395, RUSCHKA und FULMEK Zs. angew. Ent. 2 1915.

Paniscus ocelliger nom. n. for *ocellaris* Szep., p. 122, STRAND Arch. Natg. 80 A. 8 1915.—*P. foveatus* sp. n. New Zealand p. 36, CAMERON Mem. Manchester Soc. 42 1898 No. 1.—*P. elegans* f. n. *nigriventris* p. 266, HABERMEHL D. ent. Zs. 1921.

Pleurodontoplax faceta sp. n. Africa p. 46, ENDERLEIN Ent. Zeitung 82.

Podogaster albitarsis sp. n. Brazil p. 10, ENDERLEIN Ent. Zeitung 82.

†*Polyclistus* ? *anglicus* sp. n. Oligocene Isle of Wight p. 10 f. 10, COCKERELL Ann. Nat. Hist. 7.

†*Polysphincta* ? *atavina* sp. n. Oligocene Isle of Wight p. 9 f. 8, COCKERELL Ann. Nat. Hist. 7.

Pristocelus stimulator sp. n. Sumatra p. 9, ENDERLEIN Ent. Zeitung 82.

Pristomerus flavipes Sumatra p. 7, *bollowi* New York p. 9, spp. n., ENDERLEIN Ent. Zeitung 82.

Prosmorus minki and *rufinus*, remarks on, STRAND pp. 113–114, Arch. Natg. 80 A. 10 1915.

Schizoloma crassicalx sp. n. Sumatra p. 11, ENDERLEIN Ent. Zeitung 82.

Sinophorus maccus p. 39 Sumatra, *peruanus* Peru, *cyclostigma* Costa Rica p. 40, *luderwaldti* p. 41 Brazil, spp. n., ENDERLEIN Ent. Zeitung 82.

†*Stilpnus oligocenus* sp. n. Oligocene Isle of Wight p. 4 f. 1, COCKERELL Ann. Nat. Hist. 7.

Thaumatotypidea, the male, p. 111, *koebelei* sp. n. Washington p. 112, CUSHMAN P. ent. Soc. Washington 23.

†*Tilgidopsis* gen. n., *haesilans* sp. n. Eocene Colorado p. 37 fig., COCKERELL P. U. S. Mus. 59.

Xanthopimpla, generic characters, table and descriptions of species, KRIEGER pp. 1-148 Arch. Natg. 80 A 6 1914; pp. 1-152 ibid. A 7 1915.—*Xanthopimpla princeps* Sikkim p. 46, figs., *dux* Sumatra p. 48, figs., *formosensis* Formosa p. 51 figs., *macroductyla* Sikkim p. 54, figs., *macrura* Bolivia p. 56, figs., *braueri* N. China p. 58, figs., *manilensis* Luzon p. 62, figs., *brachyparea* Formosa p. 63, figs., *commixta* Assam p. 67, figs., *melanura* Celebes p. 69, figs., *gampsura* Borneo p. 70, figs., *circularis* Celebes p. 77, figs., *leviuscula* Tonkin p. 79, figs., *luzonensis* Luzon p. 81, figs., *brachycentra* Formosa p. 86, figs., *mucronata* Sumatra p. 87, figs., *reicherti* Tonkin p. 89, figs., *clavata* Formosa p. 91, figs., *valga* Sumatra p. 94, figs., *rimosa* Sumatra p. 96, figs., *carinata* Sumatra p. 98, figs., *exigua* Borneo p. 100, figs., spp. n.; *fasciata* var. n. *insulana*, Formosa, p. 104; *melampus* Sumatra p. 105, figs., *interrupta* Sumatra p. 107, figs., *frontalis* Luzon p. 109, figs., *decurtata* Luzon p. 113, figs., *detruncata* Formosa p. 115, figs., *abnormis* Luzon p. 122, figs., *terebratrix* German E. Africa p. 124, figs., *wahlbergi* Cafraria p. 125 figs., spp. n.; *punctata* var. n. *szepligetii*, Java, p. 131; *dahli* sp. n. New Britain p. 135, figs., *philippinensis* var. n. *septemtrionalis* Luzon p. 141, figs., *aliena* sp. n. W. Africa p. 147, figs., KRIEGER Arch. Natg. 80 A. 6 1914.—*X. nursei* var. n. *confluens* Luzon p. 4; *doleschali* Amboina p. 4, figs. *dohrni* Sumatra p. 6, figs., spp. n.; *dohrni* varr. n. *sukabumensis* Java. p. 8, *novarae* Java p. 9; *microcephala* Amboina p. 9, figs., *transfuga* Java p. 10, figs., *enderleini* Sumatra p. 14, figs. *hyaloptila* Queensland p. 16, figs., *romani* German East Africa p. 20, figs., *stictopleura* Lake Nyasa p. 22, figs., *stictischia* Sumatra p. 27, figs., *ansata* Sumatra p. 29, figs., *conradti* Cameroon p. 34, figs., *sicaria* W. Africa p. 37 figs., *quadrinotata* Spanish Guinea p. 38, figs., spp. n.; *maculosa* var. n. *orientalis* Delagoa Bay p. 42; *disjuncta* Spanish Guinea p. 43, figs., *pachymera*

"Masella" p. 45, figs., *stenophatna* Zanzibar p. 46, figs., *levis* Spanish Guinea p. 48, figs., *boopis* Spanish Guinea p. 50, figs., *tosquineti* Sene-gambia p. 52, figs., *hildebrandti* Madagascar p. 59, figs., *coelocnema* Cameroon p. 61, figs., *coalita* W. Africa p. 62, figs., *phoenicura* Brazil p. 64, figs., *olfersi* Brazil p. 66, *craspedoptera* Colombia p. 67, figs., *spiloptera* Brazil p. 69, figs., *aurita* Bolivia p. 71, figs., *peruana* Peru p. 73, figs., *mira* W. Africa p. 75, figs., *cuneata* Sumatra p. 78, figs., *tessmanni* W. Africa p. 81, figs., *heymonsi* Madagascar p. 83, figs., *büttneri* Togoland p. 85, figs., *habermehli* Madagascar p. 87, figs., *trunca* Sumatra p. 88, figs., *munda* Luzon p. 91, fig., *trigonophatna* Luzon p. 92, fig., *alternans* Formosa p. 94, *erythroceros* Formosa p. 95, figs., *eurycephala* Borneo p. 97, figs., spp. n.; *eurycephala* var. n. *assamensis* Assam p. 99; *genualata* Sumatra p. 100, figs., *sauteri* Formosa p. 102, *micraulax* Borneo p. 104, figs., *despinosa* Sumatra p. 106, figs., *fastigiata* Sumatra p. 108, figs., *stictoprocta* Luzon p. 110, figs., *aequabilis* Formosa p. 114, figs., spp. n.; *aequabilis* var. n. *sinensis* China p. 116, *pusilla* Siam p. 119, *pumilio* Sumatra p. 120, figs., *jacobsoni* Java p. 123 figs., *clausa* Amboina p. 126, figs., *aperta* Amboina p. 128, figs., *ischnoceros* Formosa p. 134, figs., spp. n. *ischnoceros* var. n. *assamensis* Assam p. 135; *rhopaloceros* Australia p. 136, figs., *corynoceros* Sumatra p. 138, figs., *melanacantha* Siam p. 141, figs., *imperfecta* Formosa p. 143, figs., *incompletea* Java p. 145, *connexa* Luzon p. 147, figs., spp. n., *gabunensis* synonym of *occidentalis* p. 32, KRIEGER Arch. Natg. 80 A. 7 1915.—*X. pedatoris* nom. n. for *Pimpla pedator* Tosquinet, *maculifrons* Cameron 1907 a var. of *stemma* Thbg., *appendicis* nom. n. for *appendiculata* Cameron 1906, p. 122, STRAND Arch. Natg. 80 A. 8 1915.

Xenoschesis mordax, male described as ? var. n. *lydivora*, Morbach p. 114, STRAND Arch. Natg. 80 A. 10 1915.

Xiphosoma macrum Costa Rica, *inane* S. Amer. p. 5, spp. n., ENDERLEIN Ent. Zeitung 82.

Zachrestinus gen. n. type *fractocristatus* sp. n. Brazil p. 38, ENDERLEIN Ent. Zeitung 82.

Zastenomorpha gen. n. *lamina* sp. n. Virginia p. 81, VIERECK Psyche 28.

BRACONIDAE.

Formation of cocoons, DUTT pls. xxvii and xxviii pp. 157-163 Rep. ent. meeting Pusa 4.

Allochronus gen. n., *trimerocleri* sp. n. Madagascar, MARSHALL Agric. prat. pays chauds 1902 p. 643, fig. (not seen by recorder).

Alysia stramineipes sp. n. New Zealand p. 39, CAMERON Mem. Manchester Soc. 42 1898 No. 1.

Apanteles rubecula, natural history, GAUTIER & RIEL pp. 143-147 Bull. Soc. ent. France 1921.—*A. reedi* sp. n. Chili p. 34, PORTER Rev. Chil. Hist. Nat. 24.

Ascogaster crenulatus sp. n. New Zealand p. 37, CAMERON Mem. Manchester Soc. 42 1898 No. 1.

†*Bathystomus* ? *peritus* sp. n. Oligocene Isle of Wight, COCKERELL p. 16 f. 17 Ann. Nat. Hist. 7.

†*Bracon rottensis* sp. n. Aquitanian, Siebengebirge, p. 224, fig., MEUNIER Zs. D. Geol. Ges. 67 1915.

†*Calypptoides* gen. n. near *Eubadizon*, *veternus* sp. n. Oligocene Isle of Wight, COCKERELL p. 13 f. 13 Ann. Nat. Hist. 7.

Chaenusa conjungens parasitic on the fly *Hydrellia*, RIMSKY-KORSAKOV p. 210, Rev. Russe Ent. 16 1917.

†*Dacnuses* gen. n., *sepultus* f. 21, *reductus* f. 22, spp. n., Oligocene Isle of Wight, COCKERELL p. 19 Ann. Nat. Hist. 7.

Dinocampus dichrous sp. n. Chili p. 163, BRÉTHES Rev. Chil. Hist. Nat. 22.

†*Diospiloides* gen. n., *hooleyi* sp. n. Oligocene Isle of Wight, COCKERELL p. 14 f. 14 Ann. Nat. Hist. 7.

†*Diospilus acourti* sp. n. Oligocene Isle of Wight p. 12 f. 12, COCKERELL Ann. Nat. Hist. 7.

Habrobracon diversicolor sp. n. California p. 174, VIERECK Ent. News 32.

Hybothoracoides n. n. for *Hybothorax* Szepl. nec Ratzbg. p. 174, STRAND Int. ent. Zs. 14.

Ipobracon izagai sp. n. Chili p. 6, PORTER Rev. Chil. Hist. Nat. 24.—†*I. veclensis* f. 18, *micrarche* f. 19, spp. n., Oligocene Isle of Wight, COCKERELL p. 17 Ann. Nat. Hist. 7.

Meteorus nova-zealandicus sp. n. New Zealand p. 38, CAMERON Mem. Manchester Soc. 42 1898 No. 1.

Microbracon lefroyi, natural history, HUZAIN & MATHUR Rep. ent. meeting Pusa 4 pp. 298-311.

Microplitis ophiuseae sp. n. India p. 298, figs., AIYAR J. Bombay Nat. Hist. Soc. 28.—*M. similis*, *eusirus*, spp. n., India p. 129, LYLE Bull. ent. Res. 12.

Opius ponerophagus sp. n. India, SILVESTRI p. 426, figs. Mem. Acc. Lincei 25 1916.

†*Phanomeris* ? *colenutti* sp. n. Oligocene Isle of Wight, COCKERELL, p. 18 f. 20 Ann. Nat. Hist. 7.

Pseudocervulus n. n. for *Cervulus* Szepl. nec Blainv. p. 174, STRAND Int. ent. Zs. 14.

Rhogas (*Heterogamus*) *percurrans* sp. n. India p. 131, LYLE Bull. ent. Res. 12.

†*Sigalphus* ? *ceroicalis* sp. n. Oligocene Isle of Wight, COCKERELL p. 15 f. 15 Ann. Nat. Hist. 7.

Spinaria nigriceps Cam., AIYAR pl. ii f. 2 p. 30 Rep. ent. meeting Pusa 4.

Trioxys placidus sp. n. [France ?], GAUTIER p. 302 Bull. Soc. ent. France 1921 1922.

Tritomios n. n. for *Tritoma* Szepl. nec. F. p. 174, STRAND Int. ent. Zs. 14.

†*Xenarcha* ? *distracta* sp. n. Oligocene Isle of Wight, COCKERELL p. 15 f. 16 Ann. Nat. Hist. 7.

EVANIIDAE.

Gasteruption pedemontanum in Holland p. 297, LINDEMANS Ent. Ber. Helder 5.

STEPHANIDAE.

Foenatopus variidens sp. n. Java p. 257, ELLIOTT Entomol. 54.

Poecilogonalos fulvoscutellata Ay. = (*mimus* Cock.), AIYAR p. 32 Rep. ent. meeting Pusa 4.

Stephanus pilosus, rugosus, spp. n., Java p. 256, ELLIOTT Entomol. 54.

Trigonalos melanoleuca subsp. n. *nigrofemorata* Santos, BISCHOFF p. 157 Arch. Natg. 81 A 3 1915.

CHALCIDIDAE.

List of *Pteromalidae* parasitic on grain pests, p. 14-24, figs., keys, WATERSTON Royal Soc. Reports Grain Pests Committee No. 9.

List *Aphelininae* of Japan pp. 97-100, MAKAYAMA Philippine J. Sci. 18.

Ablerus punctatus p. 186, *nelsoni* p. 188, spp. n., Queensland, GIRAULT Insecutor Ins. Menstr. 9.

Amonodontomerus iucundus p. 189, *silvae* p. 190, spp. n., Queensland, GIRAULT Insecutor Ins. Menstr. 9.

Anagrus subfuscus parasitic on eggs of *Paraneuroptera*, RIMSKY-KORSAKOV p. 222, Rev. Russe Ent. 16 1917.

Anaphes cinctus parasitic on eggs of *Dytiscidae*, RIMSKY-KORSAKOV p. 220 Rev. Russe Ent. 16 1917.

Anaphoidea conotracheli, habits, PORTER & ALDEN p. 62 P. ent. Soc. Washington 23.

Anastatus aeschlyi sp. n. Queensland p. 186, GIRAULT Insecutor Ins. Menstr. 9.

Aphelinus voltairei sp. n. Queensland p. 188, GIRAULT Insecutor Ins. Menstr. 9.—*A. chaonia*, oviposition, ARROW p. 211 Ent. Mag. 57.

Apteroptrix aspidiotiphagoidea sp. n. Queensland p. 189, GIRAULT Insecutor Ins. Menstr. 9.

Archinus chilensis sp. n. Chili p. 165, BRÉTHES Rev. Chil. Hist. Nat. 22.

Asympiesella india, natural history, DUTT p. 287 pl. xlix, Rep. ent. meeting Pusa 4.

Blastophaga ghigii p. 145 figs. sp. n. N. S. Wales, GRANDI Boll. Lab. Portici 11.—*B. dyscritus* sp. n. E. Africa p. 417, WATERSTON Trans. ent. soc. London 1920 1921.—*B. penes*, habits and instinct, COTTE pp. 200-202 Bull. Soc. ent. France 1921.

Brethesiella n.n. for *Brethesia* p. 16, PORTER Rev. Chil. Hist. Nat. 24.

(N-17041 j) Q

Bruchophagus mellipes Gah. = (*Eurytoma indi* Gir.), AYYAR Rep. ent. meeting Pusa 4.

Ceratoneura indica sp. n. Coimbatore p. 127, ROHWER Ann. Nat. Hist. 7.

Ceratosolen hewitti sp. n. Borneo p. 35 figs., WATERSTON Bull. ent. Res. 12.

Chalcis euthyrrhini sp. n. Queensland p. 67, DODD, Bull. ent. Res. 12.

Cheirophachys, notes, pp. 123-124, STRAND Arch. Natg. 81 Abt. A Heft 11.

Coccophagus yoshidae sp. n. Japan p. 98, NAKAYAMA Philippine J. Sci. 18.

Diglochis lophyrorum sp. n. p. 400 Bohemia, RUSCHKA und FULMEK Zs. angew. Ent. 2 1915.

Dinocarsis bella p. 190, *spica* p. 191, spp. n. Queensland, GIRAULT Insecutor Ins. Menstr. 9.

Diplolepis microgastri Bouché = (*Habrocytus microgasteris* Kurdj.), RUSCHKA und FULMEK Zs. angew. Ent. 2 1915 p. 400.

Elachistus monachae sp. n. Mähren p. 398, RUSCHKA und FULMEK Zs. angew. Ent. 2 1915.

Elasmus indicus p. 124, *rephantidis* p. 125, spp. n., Coimbatore, ROHWER Ann. Nat. Hist. 7.

Euchalcis barbara sp. n. Morocco p. 118, BENOIST Bull. Soc. ent. France 1921.

Eupelmus aesopi p. 186, *muramura*, *inkaka* p. 187, *dodo*, *tennysoni* p. 188, spp. n., Queensland, GIRAULT Insecutor Ins. Menstr. 9.

Euplectrus leucostomus p. 134, *euplexiae* p. 135, spp. n., Coimbatore, ROHWER Ann. Nat. Hist. 7.

Eupristina emeryi, *koningsbergi*, Java p. 217, *grassii* Ceylon p. 218, *saundersi* p. 225 India, spp. n., GRANDI Boll. Lab. Portici 11.—*E. verticillata* sp. n. Borneo p. 38 figs., WATERSTON Bull. ent. Res. 12.

Euryscotolinx coimbatorensis sp. n. India p. 134, ROHWER Ann. Nat. Hist. 7.

Eretmocerus australis sp. n. Queensland p. 188, GIRAULT Insecutor Ins. Menstr. 9.

Exoclaenoides mutilloides sp. n. Queensland p. 189, GIRAULT Insecutor Ins. Menstr. 9.

Grotiusella eja sp. n. Queensland p. 190, GIRAULT Insecutor Ins. Menstr. 9.

Habrolepis mayri sp. n. Austria p. 403, RUSCHKA und FULMEK Zs. angew. Ent. 2 1915.

Hetreulophus voltairei sp. n. Queensland p. 191, GIRAULT Insecutor Ins. Menstr. 9.

Lariophagus distinguendus, morphology and synonymy pp. 463-465, RUSCHKA Zs. angew. Ent. 7 1921.

Miscogasteromorpha eja sp. n. Queensland p. 191, GIRAULT Insecutor Ins. Menstr. 9.

Neanastatus aeschlyi sp. n. Queensland p. 186, GIRAULT Insecutor Ins. Menstr. 9.

Neorileyella bella sp. n. Queensland p. 187, GIRAULT Insecutor Ins. Menstr. 9.

Ootetrastichus formosanus sp. n. Formosa p. 553 figs., TIMBERLAKE P. Hawai. ent. Soc. 4.

Ophelosia lucretii sp. n. Queensland p. 189, GIRAULT Insecutor Ins. Menstr. 9.

Pediobopsis locustivora sp. n. Coimbatore p. 126, ROHWER Ann. Nat. Hist. 7.

Platyterma, review of spp. pp. 157-171, *ecksteini*, sp. n. Prussia p. 168, WOLFF Zs. angew. Ent. 3 1916.

Pleistodontes froggatti Mayr. GRANDI pp. 150-159 fig. Boll. Lab. Portici 11.

Pleurotropis epigonus in U.S., WADE & MYERS pp. 202-206 P. ent. soc. Washington 23.—*P. epilachnae* sp. n. Coimbatore p. 126, ROHWER Ann. Nat. Hist. 7.—*Pleurotropis*=(*Pseudacriasoides* and *Epipleurotropis* Gir.) p. 113, *benefica* sp. n. U.S. p. 117, GAHAN P. ent. soc. Washington 23.

Prestwichia aquatica parasitic on eggs of *Dytiscidae*, RIMSKY-KORSAKOV p. 211 figs. 1, 2 Rev. Russe Ent. 16 1917.

Prorhypoideus gen. n. *Arrhenophagini*, *baezi* sp. n. Parana, BRÈTHES p. 80 Bull. soc. ent. France 1921.

Prospaltella niigatae sp. n. Japan p. 99, NAKAYAMA Philippine J. Sci. 18.

†*Pteromalus vectensis* sp. n. Oligocene Isle of Wight p. 25 f. 32, COCKERELL Ann. Nat. Hist. 7.

Rhiconopeltella gemma sp. n. Queensland p. 190, GIRAULT Insecutor Ins. Menstr. 9.

Signophora ruskini sp. n. Queensland p. 188, GIRAULT Insecutor Ins. Menstr. 9.

Stomatoceras bergeraci, *livii*, spp. n. Queensland p. 187, GIRAULT Insecutor Ins. Menstr. 9.—*S. ayyari* pl. ii f. 1 p. 30, AYYAR Rep. ent. meeting Pusa 4.

Tanava gen. n. p. 122, *rospigliosii* sp. n. p. 123, Peru, BRÈTHES Rev. Chil. Hist. Nat. 22.

Tetrastichus okawus p. 128, *ayyari* p. 129, *isaaci* p. 130, *nyemitanus* p. 131, *coimbatorensis* p. 133, spp. n. Coimbatore, ROHWER Ann. Nat. Hist. 7.—*T. rapo* natural history, PICARD pp. 206-208 Bull. soc. ent. France 1921.—*T. luridiceps* p. 166, *porteri* p. 167, *rivalis* p. 168, spp. n., BRÈTHES Rev. Chil. Hist. Nat. 22.

Zatropis tortricidis sp. n. U.S. p. 172, CRAWFORD P. ent. Soc. Washington 23.

PROCTOTRYPIDAE & BETHYLIDAE.

Proctotrypoidea of Australia, DODD pp. 1-32 Arch. Natg. 80 A 9 1915.

†Fossil and subfossil *Proctotrypidae* from Zanzibar and Madagascar, pp. 391-395, MEUNIER Zs. D. Geol. Ges. 68 1916.

Acolus flaviceps sp. n. Queensland p. 30, DODD Arch. Natg. 80 A 9 1915.

†*Acutibaesus* gen. n. *bellicosus* sp. n. (copal, no locality) p. 395 figs., MEUNIER Zs. D. Geol. Ges. 68 1916.

Antarctopria gen. n. near *Paramesius* p. 27, *latigaster* sp. n. Macquarie I. p. 28 figs. 9 10 22, BRUES Sci. Rep. Austr. Ant. Exp. 1911-14 Ser. C. 5 pt. 8 1920.

Anteoninae phylogeny, FENTON pp. 337-341 Proc. Iowa Acad. Sci. 27.

Anteris grandis sp. n. Queensland p. 23, DODD Arch. Natg. 80 A 9 1915.

Baryconus venustus synonym of *bellus* p. 17, *maculatus* p. 17, *nigricaput* p. 17, *rufithorax* p. 18, spp. n. Queensland, DODD Arch. Natg. 80 A 9 1915.

Cacellus augustus p. 27, *giganteus* p. 28, **spp. n.** Queensland, DODD Arch. Natg. 80 A 9 1915.

Ceraphron fuliginosi **sp. n.** England p. 15, Box Ent. Rec. 33.—†*C. serratulus* p. 393, *fasciatus* p. 394, **spp. n.** subfossil and recent copal. Zanzibar. MEUNIER Zs. D. Geol. Ges. 68 1916.

Chalcogonatopus albiscapus **sp. n.** Queensland p. 3, DODD Arch. Nat. 80 A 9 1915.

Conostigmus flavibasalis p. 1 *planus* p. 2, **spp. n.** Queensland, DODD Arch. Natg. 80 A 9 1915.

Echthrodelpax perkinsi **sp. n.** Queensland p. 2, DODD Arch. Natg. 80 A 9 1915.

Epigonatopus americanus **sp. n.** Iowa p. 70, FENTON Canad. Ent. 53.

Gonatopus agropyrius, *similis*, **spp. n.**, Iowa p. 71, FENTON Canad. Ent. 53.

Hadronotus suvaensis Fiji p. 161, *javensis* Java p. 162, **spp. n.**, DODD Arch. Natg. 80 A 5 1914.—†*H. spinosus* p. 20, *orientalis* p. 21, *rubricapax* p. 21, *ocularis* p. 31, *fuscipes* p. 32, **spp. n.**, Queensland, DODD Arch. Nat. 80 A 9 1915.

Inostemma porteri **sp. n.** Chili p. 164, BRÉTHES Rev. Chil. Hist. Nat. 22.

Lagynodes niger var. *n. anterior*, Box p. 15 Ent. Rec. 33.

†*Lithobelyta* **gen. n. reducta** **sp. n.** Oligocene Isle of Wight p. 22 f. 27, COCKERELL Ann. Nat. Hist. 7.

Loxotropa fuliginosi **sp. n.** England p. 16, Box Ent. Rec. 33.

Macroteleia nigriscapus p. 13, *infusca* p. 14, *simillima* p. 14, **spp. n.**, Queensland, DODD Arch. Natg. 80 A 9 1915.

†*Mesitius ? rectinervis* **sp. n.** Oligocene Isle of Wight p. 21 f. 26, COCKERELL Ann. Nat. Hist. 7.

†*Messoria* **gen. n. copalina** **sp. n.** subfossil and recent copal Madagascar p. 392 fig., MEUNIER Zs. D. Geol. Ges. 68 1916.

†*Microteleia veterana* **sp. n.** Oligocene Isle of Wight p. 21 f. 26, COCKERELL Ann. Nat. Hist. 7.

(N-17041 j) q

†*Mista ? strigata* **sp. n.** Oligocene Isle of Wight p. 22 f. 28, COCKERELL Ann. Nat. Hist. 7.

Neotelenomus pulchricornis p. 9, *pallidithorax* p. 10, *laticeps* p. 10, *simulans* p. 11, *aegicerophilus* p. 11, *parvulus* p. 12, **spp. n.**, Queensland, DODD Arch. Natg. 80 A 9 1915.

Phaenoserphus levifrons, Box p. 92 Ent. Mag. 57.

Phanurus depressus **sp. n.** Queensland p. 8, DODD Arch. Natg. 80 A 9, 1915.

Platogryon rufipes synonymy p. 25, *longicornis* p. 25, *fuscus* p. 26, **spp. n.**, *niger* subsp. *n. rubrifemur* p. 26, *flavios* **sp. n.** p. 32 Queensland, DODD Arch. Natg. 80 A 9, 1915.

Platygaster dryomyiae embryology, SILVESTRI Boll. Lab. Portici 11 pp. 299-326 3 pls.

Rhabdepyris zeae **sp. n.** p. 27, TURNER and WATERSTON Royal Soc. Reports Grain Pests Committee No. 9.

Scelio varipunctatus, *orientalis*, **spp. n.**, Queensland, DODD p. 29 Arch. Natg. 80 A 9 1915.

Synopeas fuscicola **sp. n.** England p. 16, Box Ent. Rec. 33.

Telenomus giraulti Fiji p. 161, *javensis* p. 163, *vandergooti*, *spodopterae* p. 164 Java, **spp. n.**, DODD Arch. Natg. 80 A 5 1914.—†*T. ection* Queensland p. 3, *elpenor* Queensland p. 4, *egeria* Queensland p. 4, *flavescens* Queensland p. 4, *eteocles* Queensland p. 5, *eleleus* Queensland p. 5, *endymion* Queensland p. 6, *euander* Queensland p. 7, *darwinensis* Northern Territory p. 7, *ephyra* Queensland p. 7, *erigone* Queensland p. 8, **spp. n.**, DODD Arch. Natg. 80 A 9 1915.

Trichoteleia novae-hollandiae p. 22, *terra-regina* p. 22, *nigricincta* p. 31, **spp. n.**, Queensland, DODD Arch. Natg. 80 A 9 1915.

†*Zygota ? filicornis* **sp. n.** Oligocene Isle of Wight p. 23 f. 29, COCKERELL Ann. Nat. Hist. 7.

CYNIPIDAE.

Cynipidae of the Ardennes, PIGEOT Bull. Soc. Ardennes pp. 28-33 8 1901; pp. 8-21 9 1902; pp. 13-24 11 1904.

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New galls of *Cynipidae*, WELLS pp. 35-45 pl. Psyche 28.

Biology of *Cynipidae*, PIGEOT pp. 26-29 Bull. Soc. Ardennes 6 1899.

Acanthaequilips brasiliensis p. 434 f. 1, WELD P. U. S. Mus. 59.

Acantheucoela armata Cr. p. 449 f. 9, WELD P. U. S. Mus. 59.

Aegilips chilensis sp. n. Chili p. 164, BRÈTHES Rev. Chil. Hist. Nat. 22.

Alloxysta gautieri sp. n. [? France], KIEFFER p. 306 Bull. Soc. ent. France 1921 1922.

Andricus furunculus, gall of, PIGEOT pp. 37-38 Bull. Soc. Ardennes 11 1904.—*A. kiefferi* sp. n. Ardennes p. 80, PIGEOT Bull. Soc. Ardennes 6 1899.—*A. peltatus* sp. n. U.S. p. 212 figs. gall, WELLS & METCALF Canad. Ent. 53.—†*A. vectensis* sp. n. Oligocene Isle of Wight p. 23 f. 30, COCKERELL Ann. Nat. Hist. 7.

Bassetia tenuana sp. n. New Mexico p. 232, WELD P. U. S. Mus. 59.

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Promiomera filicornis Ashm. p. 446 f. 7, WELD P. U. S. Mus. 59.

†*Rhodites vetus* sp. n. Oligocene Isle of Wight p. 24 f. 81, COCKERELL Ann. Nat. Hist. 7.

Trigonaspis obconica p. 202, fumosa p. 204, spp. n., U.S. with figs. of galls, WELD P. U. S. Mus. 59.

Trissodontaspis rufipes p. 443 f. 5, WELD P. U. S. Mus. 59.

Tropideucoila rufipes Ashm. p. 448 f. 8, WELD P. U. S. Mus. 59.

Xystoteras contorta sp. n. Texas p. 209 with figs. of galls, WELD P. U. S. Mus. 59.

Zaeucoila unicarinata Ashm. p. 445 f. 6, WELD P. U. S. Mus. 59.

Zamischus brasiliensis p. 437 f. 2, WELD P. U. S. Mus. 59.

TENTHREDINOIDEA.

Terminal abdominal structures of larvae, terminology, MIDDLETON pp. 139-144 figs. P. ent. Soc. Washington 23.

The homologies of adult and larva, MIDDLETON pp. 173-192 2 pls. P. ent. Soc. Washington 23.

Keeping sawflies alive, CHAWNER p. 19 Ent. Mag. 57.

Fat bodies, glands and malpighian tubes in Tenthredinidae, pp. 249-254 1 fig., WILKE Zool. Anz. 52.

Tenthredinidae notes on, PIGEOT Bull. Soc. Ardennes pp. 71-78 6 1899; pp. 17-28 7 1900; pp. 18-27 8 1901.

Diptera parasitic on sawflies, GREENE pp. 43-45 P. ent. Soc. Washington 23.

Reflex actions in *Tenthredinidae*, pp. 250-259, LÖHNER Arch. Ges. Physiol. 180.

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Derecyrta proteri sp. n. Chili p. 49, BRÈTHES Rev. Chil. Hist. Nat. 23.

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Lycosceles porteri sp. n. Chili p. 50, BRÈTHES Rev. Chil. Hist. Nat. 23.

Lyda hypotrophica = (*Cephaleia abietes* L.), biology and anatomy, SCHEIDTER Zs. angew. Ent. 3 1916 pp. 97-116.

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Macrophya lucida sp. n. India p. 101, ROHWER P. U. S. Mus. 59.

Nematus erichsoni biology and control, pp. 99-112, LANDRY Nat. Canad. 47.

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LEPIDOPTERA.

Setae of Lepidopterous larvae pp. 145-149, 13 figs., GARMAN Ann. Ent. Soc. Amer. 14.

Foodplants of larvae of E. African *Lepidoptera*, pp. 30-32, REUSS Ent. Rundsch. 38.

List of *Lepidoptera* taken at Batum, FILIPJEV pp. 361-367 Rev. Russe Ent. 16 1917.

Lepidoptera of the Government of Kaluga, Russia, FILIPPOV pp. 338-342 Rev. Russe Ent. 16 1917.

Supplementary list of *Lepidoptera* of Frankfort-on-Oder, HERRMANN pp. 137-142 Helios 28 1916.

Records of Sardinian *Lepidoptera*, KRAUSSE pp. 123-124, Arch. Natg. 81 A. 2 1915.

Lepidoptera from Upper Egypt and the Egyptian Sudan, STRAND pp. 95-112, Arch. Natg. 80 A. 10 1915.

Remarks on the *Lepidoptera* of Greenland pp. 130-131, STRAND Arch. Natg. 80 A. 8 1915.

Lepidoptera of North America, particularly California, STRAND pp. 151-163, Arch. Natg. 80 A. 11 1915.

The *Lepidoptera* of the Alatau of Kuznetzk, TSHUGUNOV pp. 97-105, Rev. Russe Ent. 16 1916.

Nervous system, SWAINE pp. 29-34 pl. ii. Canad. Ent. 53.

Notes on the tympanal organ in the thorax of *Noctuidae* and other *Lepidoptera*, EGGERS pp. 249-265, figs. 1-7, Rev. Russe Ent. 16 1917.

Morphology of the genital apparatus in *Lepidoptera*, KUSNEZOV pp. 151-191, figs. 1-19 Rev. Russe Ent. 16 1917.

Spermatogenesis in *Lepidoptera*, VERLAINE pp. 1-28, pls. I., ii. Mem. Ac. R. Belg. (2) 4 1920 fasc. 4.

Spermatogenesis in *Lepidoptera*, KERNIEWITZ pp. 1-34 pls. i-iii text-figs. 1-14 Arch. Natg. 81 A. 1 1915.

Mimicry; RÖBER Ent. Mitt. 10. pp. 23-30, 34-40, 68-74.

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Butterflies of the United Provinces, FIELD pp. 641-642 J. Bombay Nat. Hist. Soc. 27.

Butterflies of Tavoy District, Burma, OLLENBACH pp. 883-897, map, pl., 27; pp. 123-139, pl., 28; J. Bombay Nat. Hist. Soc.

Butterflies of Mesopotamia, PEILE pp. 50-70, J. Bombay Nat. Hist. Soc. 28.

Rhopalocera of Illyro-Adriatic region, p. 101 etc., STAUDER Zs. Wiss. Insektenbiol. 16.

Rhopalocera of the Samoan islands, list, SWEZEY pp. 601-605 P. Hawaii. Ent. Soc. 4.

Enemies of Butterflies, DOVER pp. 642-643, J. Bombay Nat. Hist. Soc. 27.

PAPILIONIDAE.

Catalogue *Papilionidae* of Indochina, pp. 7-26, DUBOIS & SALVAZA Faune ent. Indochine fasc. 3.

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Parnassius acdestis varieties, p. 130, SHELJUZHKO D. ent. Zs. Iris 32, 1919.—*P. apollo oenipontanus* subsp. n. Tyrol p. 123, STAUDER & FELKEL Ent. Anz. Wien 1.—*P. apollo posthumus*, *rebelianus*, p. 13, *sicinius*, p. 14, subsp. n. C. Europe, FRUHSTORFER Soc. Entomol. 36.—*P. apollo agyiens* p. 29, *victoralis* p. 29 fig. 1 and 2 p. 30, *phrynius* p. 30 fig. 3, *chetus* p. 30 fig. 4 and 5, *caloriferus* p. 41 fig. 3, *adulans* p. 44 fig. p. 53, *heliophilus* p. 53 fig. 1 and 2 p. 41, *triumphator* p. 54 fig. pp. 55 and 66, *chrysophorus* p. 65, *cominius* p. 77, *artemidor* p. 78, *maurus* p. 78, *jelicus* p. 87, *omotimorus* p. 87, *yglanus* p. 88, *amphityon* p. 88, *hermiston* p. 89, *lioranus* p. 114, *venaisinus* p. 114, *debilis* p. 114, *bajovaricus* pp. 139 and 141, subsp. n. C. Europe, *turatinus* n. n. for *turatii* Rothsch. p. 41 fig. 4 and 6 p. 42, *valesiacus* fig. p. 42, FRUHSTORFER Ent. Anz. Wien 1.—*P. apollo* f. *sztrecsnoensis posterior* f. n. Austria-Hungary p. 35, PESCHKE Int. ent. Zs. 15.—*P. apollo pumilus* Stich., *satyrus*, p. 9, *reniformis*, *lepidaporius*, *musageles*, *cuneifer*, *flavalbidomaculata*, *rubidochraceomaculata*, p. 10, *chrysoptera*, *novaraeformis*. ff. n. Italy, STAUDER Soc. Entomol. 36.—*P. apollo* f. n. *bimacula* p. 26, STAUDER D. ent. Zs. Iris 35.—*P. apollo* f. *antijesu*ta Bryk, ♀ described, p. 263, BELLING D. ent. Zs. 1921.—*P. apollo* f. n. *basipunctata* p. 277, BELLING T.c.—*P. apollo silesianus* ♂ redescribed and figured pp. 1-2, WARNECKE D. ent. Zs. Iris 35.—*P. bremeri* f. n. *nigripuncta* Ussuri p. 214, *mnemosyne* f. n. *variabilis* Albania p. 215, pl. i. figs. 1-10 (name corrected to *parvisi* p. 346), TURATI Naturalista Sicil. 23. 1919.—*P. delius* subsp. n. *expectatus* p. 13, *tessinorum* p. 14, *blachieri* p. 16, *serenus* p. 17, *confederationis* p. 20 C. Europe, FRUHSTORFER Ent. Rundsch. 38.—*P. mnemosyne butava*, *fasselliana* subsp. n. C. Europe

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PIERIDAE.

The *Pieridae* of Celebes, MARTIN D. ent. Zs. Iris 33 pp. 48-98, 1919, 34 pp. 181-210, 1920.

Anthocharis cardamines salmonea f. n. *parvipuncta* Italy, &c., p. 217, TURATI Naturalista Sicil. 23.

Appias ada chorasina Huon Gulf, a. *dunaetha* Rendova I., subsp. n. p. 71, FRUHSTORFER Arch. Natg. 81 Abt. A Heft 11.—*A. ithome* f. n. *nigrocincta* Celebes p. 87, MARTIN D. ent. Zs. Iris 33, 1919.—*A. drusilla* f. n. *nana* p. 59, ALMEIDA Ann. Soc. ent. France 90.

Catopsilia fluminensis sp. n. Corcovado p. 65, ALMEIDA Ann. Soc. ent. France 90.

Colias edusa, variation pp. 135-140 etc., list of named forms p. 253, forms p. 279, ROWLAND-BROWN Entomol., 54.—*C. hyale* ab. n. *galvagnii* p. 220 STAUDER Zs. Wiss. Insektenbiol. 16.—*C. palaeno*, synopsis of forms, MARSCHNER, pp. 1-24 D. ent. Zs. 1921.—*C. philodice*, mutation in haemolymph colour of larva, pp. 385-415, GEROULD J. exp. Zool. 34.

Delias ariela sp. n. Timor p. 120, NIEPALT Int. ent. Zs. 15.—*D. agoranis* Smith distinct from *D. agostina* and *D. singhapura* p. 169, RILEY & GODFREY J. Nat. hist. soc. Siam 4.

Eronia buqueti buchanani subsp. n. Asben, ROTHSCHILD p. 151 Novit. Zool. 28.

Euchloë ausonia verityi race n. Persia p. 591, RILEY Ann. Nat. Hist. 8.—*E. belemia* f.n. *alexandri* Cyrenaica p. 212, TURATI Atti. soc. ital. sci. nat. 60.—*E. falloui* varieties, p. 131, SHELJIZHKO D. ent. Zs. Iris 32 1919.—*E. creusa* ab. n. *pumilio* Oregon p. 153, STRAND Arch. Natg. 80 A. 11 1915.—*E. belia*, at Reims, DEMAISON p. 120 Bull. Soc. ent. France 1921.

Gonepteryx cleopatra f.n. *palmata* Cyrenaica p. 216, TURATI Atti. soc. ital. sci. nat. 60.

Huphina fora var. n. *vallifusca* p. 69, *margilator* p. 70, *timnatha* var. n. *lamponga* p. 78, *eperia* var. n. *pallaminor* p. 72, Celebes, MARTIN D. ent. Zs. Iris 33 1919.

Leptidia sinapis f.n. *majorides* p. 27, *apicedivisa*, *brunneomaculata* p. 28, STAUDER D. ent. Zs. Iris 35.

Mylothris dollmani sp. n. p. 237, f.n. *flavida* p. 239 Rhodesia, *riippellii* subsp. n. *rhodesiana*, f.n. *kenia* p. 236, RILEY Trans. ent. soc. London 1921.—*M. interposita* p. 44 pl. ix f. 1, *latimargo* p. 45 figs. 2 and 3, spp. n. Centr. Africa *ruandana* Str. f. 4, JOICEY & TALBOT Bull. Hill Mus. 1.

Perrhybris pyrrha, larva, ALMEIDA p. 61 Ann. Soc. ent. France 90.

Pieris brassicae L. pupal coloration pp. 1-139, BRECHER Arch. Entw. Mech. 48—pp. 330-335; DEWITZ Biol. Centralbl. 41.—*P. brassicae* f.n. *italorum*, *rapae* f.n. *zelleri* p. 26, *rossioides* p. 27, *manni* f.n. *perfecta* p. 27, STAUDER D. ent. Zs. Iris 35.—*P. brassicae* ab. n. *pseudocatoleuca*, p. 151, STAUDER Zs. wiss. Insektenbiol. 16.—*P. caesia*, *subargentea*, Colombia, discussion, pp. 26-27, 30, KRUEGER Ent. Rundsch. 38.—*P. cisseeis* f.n. *pamsi*, Tonkin, p. 18, SALVAZA Faune ent. indochine, fasc. 3.—*P. melete* Men. systematic position. MARTIN p. 12 D. ent. Zs. Isis 35.—*P. mesentina* var. n. *pusillima* Bahr el Ghazal p. 106, STRAND Arch. Natg. 80 A. 10 1915.—*P. napi*, in alpine regions, WARREN Ent. Rec. 33 pp. 91-95.—*P. rapae* ab. n. *nigropunctata*, WILLIAMS p. 125 Entomol. 54.—*P. rapae*, gynandrous, FROHAWK p. 201 fig. Entomol. 54.—*P. solilucis* f.n. *sabulosa* p. 45, JOICEY & TALBOT Bull. Hill Mus. 1.

Pinacopteryx lambertoni sp. n. Madagascar p. 419, LE CERF Bul. Mus. Paris 1921.—*P. vidua* f.n. *primulina* p. 46, JOICEY & TALBOT Bull. Hill Mus. 1.

Terias lepidula sp. n. Amer. mer. p. 65, *tenella* f.n. *panopea*, *germana* and *jacarapaguana*, p. 63, ab. *alcides* p. 64, ALMEIDA Ann. Soc. ent. France 90.—*T. hecabe* f.n. *accentifera* Celebes p. 199, MARTIN D. ent. Zs. Iris 34 1920.—*T. floricola* f.n. *parva* Nigeria, ROTHSCHILD p. 152 Novit. zool. 28.

Teracolus amelia f.n. *insignis*, *celimene angusi* subsp. n., p. 145, *halimede aurivillii* subsp. n. and f.n. *restricta*, p. 146, *liagore* f.n. *liagoroides* p. 149 Africa, ROTHSCHILD Novit. zool. 28.

Zegris eupheme tigris and *dyala* subspp. n. Mesopotamia, RILEY p. 591 Ann. Nat. Hist. 8.

DANAIDAE.

Acraea eltringhami p. 47 pl. x f. 11, *bettiana* p. 48 pl. ix figs. 6-8 with ab. *kissejensis* p. 49, spp. n. Centr. Africa, *disjuncta* f.n. *alcipoides* p. 49 pl. ix. f. 10, *leucopyga latipicalis* subsp. n. Congo p. 50 f. 9, JOICEY & TALBOT Bull. Hill Mus. 1.—*A. welwitschi* subsp. n. *lutea* p. 244, *nivea* p. 245 Rhodesia, RILEY Trans. ent. soc. London 1921.

Actinote elena sp. n. Colombia p. 278, HALL Entomolo. 54.

Amauris egialea similis subsp. n. C. Africa p. 46 pl. ix f. 5, JOICEY & TALBOT Bull. Hill Mus. 1.—*A. lobengula* ssp. n. *abessinica* p. 32, *echeria* ssp. n. *occidentalis* p. 33, SCHMIDT D. ent. Zs. Iris 35.

Euploea alecto fidena f.n. New Guinea p. 63, FRUHSTORFER Arch. Natg. 81 Abt. A Heft. 11.—*E. mimetic* groups pp. 16-31 pls. i-iv, *E. eleutho* and *helcita* pp. 26-29, *E. (Stictoploea) peloroides* sp. n. Tenimber p. 30, *confusa* f.n. *mimetica* pl. i B f. 6 p. 30, TALBOT Bull. Hill Mus. 1.

Planema macaria hemileuca J. p. 47 pl. x figs. 12 and 13, JOICEY & TALBOT Bull. Hill Mus. 1.

Tellervo zoilus pantanus subsp. n. Yule I. p. 64, FRUHSTORFER Arch. Natg. 81 Abt. A Heft 11.

NYMPHALIDAE.

Hybernation in *Vanessa* p. 161, KRAUSSE Arch. Natg. 81 A Heft 5 1915.

Ageronia, stridulation, pp. 35-36, 37-38, KRUEGER Ent. Rundsch. 38.

Agrias claudia subsp. n. *pulcherrima* p. 38, *pericles* subsp. n. *mauensis* p. 41 and ab. n. *coronata* p. 42, *narcissus* ab. n. *ictericus* p. 41 S. Amer., *claudia croesus* subsp. n. *michaeli*, *godmanides*, *dubiosa* p. 12, *narcissus* subsp. n. *tapajonus* p. 13, *pericles* subsp. n. *biedermanni* p. 18, *phalcidon* subsp. n. *rubrobasalis* p. 19, *claudia croesus* ♂ described p. 9, *pericles aurantiaca* ♂ described p. 18, S. Amer., *narcissus* subsp. n. *porphyronis*, *illustrissimus*; *phalcidon* subsp. n. *xinguensis* S. Amer. p. 34, *phalcidon* f. n. *mirabilis*, *pericles* ab. n. *chlorotaenia* S. Amer. p. 50, FASZL Ent. Rundsch. 38.—*A. claudia* abb. n. *imperialis*, *nigropunctata* p. 14, *bipupillata* p. 15, subsp. n. *rufomarginata* p. 17, *intensa* sp. n. p. 18, *amydon* subsp. n. *gloriosa*, ab. n. *talboti* p. 20, *beata* ab. n. *nigra* p. 21, S. America, LATHY Thèses Entomologiques fasc. 1, Paris, 1921.

Apaturopsis cleocharis ssp. n. *schultzei* p. 43, SCHMIDT D. ent. Zs. Iris 35.

Argynnis elisa stechei subsp. n. Cor-sica p. 55, VOGT Int. ent. Zs. 15.—*A. daphne* ssp. n. *japygia*, *paphia* f. n. *calidegenita*, *pandora* ff. n. *cuneigera*, *mediodefecta* p. 30, STAUDER D. ent. Zs. Iris 35.—*A. pales* ssp. n. *isisoides* p. 271, HEYDEMAN D. ent. Zs. Iris 34 1920.—*A. improbula* f. n. (Swedish form of *A. improba*) p. 129, BRYK Ent. Tidshr. 41.—*A. lathonia* ab. n. *triangularis* (non-descr.!) p. 139, REVERDIN Bul. Soc. Lep. Genève 4.—*A. aglaia*, ab., CRAWFORD p. 15 Irish Nat. 30.

Aterica galene f. n. *albimacula* p. 56, JOICEY & TALBOT Bull. Hill Mus. 1.

Boloria cytheris, scent scales, p. 4, pp. 15-16, REUSS Soc. Entomol. 36.

Brenthis epithore ab. n. *eldorado* California p. 156, STRAND Arch. Natg. 80 A. 11 1915.—*B. bellona* ab. n. *kleenei* p. 171, WATSON J. New York Ent. Soc. 29.

Byblia acheloia f. n. *nigrifusa*, JOICEY & TALBOT p. 55 Bull. Hill Mus. 1.

Callicore platytaenia sp. n. *excelsior* subsp. n. *coruscans* p. 7, *sorana* subsp. n. *splendida* p. 8 S. Amer., RÖBER Ent. Rundsch. 38.

Callihea leprieuxi subsp. n. *dürcki* S. Amer. p. 98, FASZL Ent. Zs. 34.

Charaxes polyxena paris pl. xxii. figs. 12 and 13 p. 171, *marmarx bouringi* figs. 14 and 15, *aristogiton indefinita* pl. xxii. f. 16 and pl. xxiii f. 17, p. 172, subsp. n. Hainan, JOICEY & TALBOT Bull. Hill Mus. 1.—*C. imperialis albipunctus* subsp. n., *eupalus*, *dilutus* and *subornatus* genitalia p. 69 pl. v. spp. figured pl. vii, *eupalus latimargo* subsp. n., *subornatus minor* subsp. n. pl. vii f. 6 p. 74, JOICEY & TALBOT. T. c.—*C. ethoecles* and *fulgurator* distinct p. 241, *fulgurator* f. n. *mima* p. 243 Rhodesia, RILEY Trans. ent. soc. London 1921.

Cirrochroa chione sp. n. Siam. p. 176, RILEY & GODFREY J. nat. hist. soc. Siam 4.

Clossiana gen. n. type *Argynnis selene* Schiff. p. 190, REUSS Ent. Mitt. 10.

Cymothoe stetteni p. 12 fig. 17, *sultani* p. 14 fig. 18, *siegfriedi* p. 15 fig. 19, spp. n., Cameroon, BRYK Arch. Natg. 81 A 4 1915.—*C. heliada*, *heliadina* n. v. p. 159, *caenis diffusa* ab. n. p. 160, Kamerun, SCHULTZE Arch. Natg. A 81 H. 7 1915.—*C. theobene* ab. *sordida* p. 136, *oemilius* ab. *achillides* abb. n., *ovassae* sp. n. p. 137 W. Africa, SCHULTZE Arch. Natg. 81 Abt. A Heft. 12.—*C. kassaiensis* sp. n. Congo p. 49, SCHMIDT D. ent. Zs. Iris 35.—*C. theobene* f. n. *umbrina* p. 56, *eris* Aur. p. 57 pl. xi f. 18, *herminia* = (*johnstoni* Butl. and *weymeri* Suff.) pl. x f. 17 p. 58, JOICEY & TALBOT Bull. Hill Mus. 1.

Cynthia erota hainana, ♀ pl. xxi figs. 6-8 p. 169, JOICEY & TALBOT Bull. Hill Mus. 1.

Diestrogyna tessmanniana sp. n. Kamerun p. 10 fig. 14, BRYK Arch. Natg. 81 A 4 1915.—*D. umbrina* Aur. ♀ p. 64 pl. xii f. 28, JOICEY & TALBOT Bull. Hill Mus. 1.

Dione moneta and *glycera* synonymy, HALL pp. 276-278 Entomol. 54.

Eresia callianthina sp. n. Colombia p. 279, HALL Entomol. 54.

Ergolis enotrea and *actisanes* variation and genitalia pp. 51-53 pl. v, *enotrea suffusa* subsp. n. C. Africa, *albifascia* pl. x figs. 14 and 15 p. 52, *personata* p. 53 f. 16, spp. n., Centr. Africa, JOICEY & TALBOT Bull. Hill Mus. 1.

Eueides crystalina sp. n. Colombia p. 279, HALL Entomol. 54.

Eulaceura osteria sitarama pl. xxi f. 10 & pl. xxii f. 11, JOICEY & TALBOT Bull. Hill Mus. 1.

Euphaedra themis f. *composita* f. n. Moyamba p. 171, WICHGRAF Int. ent. Zs. 14.—*E. vulnerata* sp. n. Kamerun p. 162, SCHULTZE Arch. Natg. A 81 H. 7 1915.—*E. eleus* ssp. n. *congoensis* p. 46, *angustimarginata* p. 48, SCHMIDT D. ent. Zs. Iris. 35.—*E. ceres* f. n. *phosphor* pl. xii f. 33, *preussi* f. n. *obsoleta* p. 66, *eleus* f. n. *coerulea* and subsp. n. *basalis* f. 34 p. 67, JOICEY & TALBOT Bull. Hill Mus. 1.

Euptera falsathyma sp. n. S. Cameroons p. 139, *hirundo* ♀ p. 139, SCHULTZE Arch. Natg. 81 Abt. A Heft 12 —*E. semirufa* sp. n. Ituri p. 60 pl. xi f. 27, *pluto* f. n. *rufa*, *hirundo lufirensis* subsp. n. p. 61 pl. xi figs. 25 & 26, *h.* f. n. *rufa* p. 62, JOICEY & TALBOT Bull. Hill Mus. 1.

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Euryphura euthalioides sp. n. Kamerun p. 160, SCHULTZE Arch. Natg. A 81 H. 7 1915.—*E. porphyryna congoensis* subsp. n. pl. xi figs. 21-24, *plautilla* f. n. *albimargo* f. 20 p. 63, JOICEY & TALBOT Bull. Hill Mus. 1.

Euthalia monima subsp. n. *grahami* Siam p. 178, RILEY & GODFREY J. nat. hist. soc. Siam 4.—*E. kesava kis* subsp. n. Hainan p. 170, JOICEY & TALBOT Bull. Hill Mus. 1.

Euwanessa antiopa variation of border, COCKAYNE pp. 205-209 Ent. Rec. 33.

Euxanthe crossleyi intermedia subsp. n. p. 75 pl. xiii figs. 36 & 37, JOICEY & TALBOT Bull. Hill Mus. 1.

Fabriciana niobe f. *cloppenburgi* f. n. Germany p. 5, REUSS Int. ent. Zs. 15.

Heliconius anderida f. *styx* f. n. Guatemala p. 19, NIEPALT Int. ent. Zs. 15.—*H. assimilis* sp. n., *notabilis*

subsp. n. *rubrescens* p. 4, *besckei* subsp. n. *principalis* p. 5 S. Amer., RÖBER Ent. Rundsch. 38.

Hestina nama melanoides subsp. n. Hainan p. 171, JOICEY & TALBOT Bull. Hill Mus. 1.

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Kükenthalia gen. n. type *Argynnis gemmata* Butl. p. 189, REUSS Ent. Mitt. 10.

Lemonias edithana sp. n. California, STRAND p. 155 Arch. Natg. 80 A 11 1915.

Limenitis dudra hainensis subsp. n. p. 170, JOICEY & TALBOT Bull. Hill Mus. 1.

Melitaea aurinia comacina abb. n. *sterlineata*, *denigrata* N. Italy p. 221 pl. ii figs. 1-3, *phoebe* ff. n. *phoebina* S. Italy p. 222 pl. ii figs. 4-5, *rostagnoi*, *sterlianeata* Rome p. 223 pl. ii figs. 10-12, *cinxia* f. n. *castiliana* Spain p. 224 pl. ii figs. 8-9, *didyma* f. n. *transcaucasica* p. 225 pl. ii figs. 17-18, *didyma* f. n. *roccii* p. 225, *dictynna* subsp. n. *briantea* with ff. n. *autumnalis* and *variegata* p. 230 pl. ii figs. 19-24, TURATI Naturalista Sicil. 23.—*M. glacialis* sp. n. Montana p. 89, SKINNER Ent. News 32.—*M. didyma* varr. *casta* and *persea* Koll., RILEY p. 594 Ann. Nat. Hist. 8.—*M. parthenie* and *varia* distinct spp. p. 87, REVERDIN Bul. Soc. Léop. Genève 4 1919.—*M. aurinia* ab. n. *epimolpadia* p. 108, REVERDIN T.c.—*M. didyma* ab. n. *mauritii* p. 40, REVERDIN Bul. Soc. Léop. Geneve 4 1918.—*M. cinxia* ff. *ocelliformis*, *subtusmarcata*, *transversa*, *branthis* ff. n. Germany pp. 4-5, *aurelia* f. *pyronioides* f. n. p. 5, REUSS Int. ent. Zs. 15.—*M. aurelia* in France, DUPONT p. 12, GERVAIS p. 13, OBERTHÜR p. 13 Bull. Soc. ent. France 1921.—*M. didyma* ab. n. *latonigenoides* Germany p. 38, KESENHEIMER Ent. Rundsch. 38.

Mynes geoffroyi vaneeckei subsp. n. Kapaur p. 66, FRUHSTORFER Arch. Natg. 81 Abt. A Heft 11.—*M. catharina maccoi* subsp. n. p. 91, f. *obscura* f. n. p. 92 Bismarck Arch., NIEPALT Int. ent. Zs. 15.

Neptis lucayensis sp. n. Belgian Congo, *metella* ab. *brunni* ab. n. S. E. Cameroons p. 140, SCHULTZE Arch. Natg. 81 Abt. A Heft 12.—*N. cartica* subsp. n. *meraca* Siam p. 177, RILEY & GODFREY J. nat. hist. soc. Siam 4.—*N. poulloni* p. 26, *barnsi* p. 27, *rothschildi* p. 28, *rogersi* p. 29, spp. n., Africa, ELTRINGHAM Ent. Mag. 57.

Parthenos sylvia cynailurus f. *guttata* f. n. Dutch N. Guinea, s. *cynagyrus* subsp. n. Kumusi R., p. 67, FRUHSTORFER Arch. Natg. 81 Abt. A Heft 11.

Penthema darlisa subsp. n. *melema* Siam p. 175, RILEY & GODFREY J. nat. hist. soc. Siam 4.—*P. lisarda bowringi* subsp. n. Hainan p. 169 pl. xxi f. 5, JOICEY & TALBOT Bull. Hill Mus. 1.

Polygonia c-album hutchinsonii and *interposita* synonymy, RILEY p. 596 Ann. Nat. Hist. 8.

Precis silvicola sp. n. N.W. Cameroons p. 111, SCHULTZE Arch. Natg. 81 Abt. A Heft 11.—*P. schmiedeli* sp. n. Kamerun p. 53, FIEDLER D. ent. Zs. Iris 34 1920.—*P. westermanni* ssp. n. *splendens* p. 34, SCHMIDT D. ent. Zs. Iris 35.—*P. archesia* f. n. *obsoleta* p. 57, JOICEY & TALBOT Bull. Hill Mus. 1.—*P. pelarga* f. *moyambensis* f. n. Sierra Leone p. 171, WICHGRAF Int. ent. Zs. 14.—*P. orithya madagascariensis* ab. n. *punctella* Bahr el Djebel p. 105, STRAND Arch. Natg. 80 A 10 1915.

Prepona eugenes var. *ecuadorica* var. n. Ecuador p. 109, STRAND Int. ent. Zs. 15.

Protopogonius diffusus ab. *ecuadorensis* ab. n. Ecuador p. 109, STRAND, Int. ent. Zs. 15.

Pyrameis gonerilla, FOUNTAINE p. 238 Entomol. 54.—*P. caryae*, life-history, HUGUENIN p. 216 Ent. News 32.

Vanessa virginiensis var. n. *ahwashtee* California p. 45 pl., Fox Psyche 28.—*V. antiopa* in Canada biology pp. 169-174, LESSARD Nat. Canad. 47.—*V. urticae* f. n. *velata* N. Italy p. 220, TURATI Naturalista Sicil. 23.—*V. canace* f. n. *hiemalis* Shikoku p. 17, MARTIN D. ent. Zs. Iris 35.

Vila, genitalia pp. 3-5, FRUHSTORFER Arch. Natg. 81 Abt. A Heft 12.

Yramea gen. n. type *Boloria cytheris* Dr. p. 189, REUSS Ent. Mitt. 10; p. 4 footnote, REUSS Soc. Entomol. 36.

SATYRIDAE.

Coelites nothis digitorum subsp. n. Hainan p. 714 pl. xxiv f. 23, JOICEY & TALBOT Bull. Hill Mus. 1.

Coenonympha satyrion ab. n. *addenda* p. 39, REVERDIN Bul. Soc. Lép. Genève 4 1918.

Elymnias putna bercovitzii subsp. n. Hainan p. 173 pl. xxiii f. 21, JOICEY & TALBOT Bull. Hill Mus. 1.

Epinephele telmessia pallescens Butl. = (*areas* Le Cerf), *lupinus centralis* subsp. n. Persia, RILEY p. 593 Ann. Nat. Hist. 8.

Erebia euryale f. n. *caeca* N. Italy p. 218 pl. iii fig. 4, *manto* f. n. *farinata* N. Italy p. 219 pl. iii fig. 3, TURATI Naturalista Sicil. 23.—*E. euryale* var. n. *tatrica* p. 94, abb. n. *basalis*, *disjuncta*, *simplex*, *heynti*, *depunctata*, *tetrastigma*, p. 95, *borsana* p. 96.—*E. ligea* abb. n. *subeuryale* p. 94, *triocellata* p. 96, *helvetica* p. 97, var. n. *bryki* p. 99, STRAND Arch. Natg. 81 A 1 1915.—*E. euryale* var. n. *tramelana* p. 33, and variation, REVERDIN Bul. Soc. Lép. Genève 4 1918.—*E. epiphron* var. n. *sudetica*, *hercynia* p. 128, PETRY D. ent. Zs. Iris 33 1919.—*E. evias* subsp. n. *victoralis* p. 53, FRUHSTORFER Ent. Rundsch 38.—*E. epiphron*, rearing of, ALDERSON Entomol. 54 pp. 57-63.

Henotesia perspicua Trimen, seasonal variation p. 240, RILEY Trans. ent. soc. London 1921.

Hyantis hodeva emarginata subsp. n. Dutch N. Guinea p. 64, FRUHSTORFER Arch. Natg. 81 Abt. A Heft 11.

Lethe sicelis f. n. *meridionalis* Shikoku p. 13, MARTIN D. ent. Zs. Iris 35.

Melanargia larissa ab. n. *typhla* p. 115, SCHAWERDA D. ent. Zs. Iris 35.—*M. ines* f. n. *sublutescens* Cyrenaica p. 217, TURATI Atti soc. ital. sci. nat. 60.—*M. galathea* f. n. *illumina* p. 28, STAUDER D. ent. Zs. Iris 35.

Morpho cypris lelargei subsp. n. Muzo p. 73 pl. x pt. I, OBERTHÜR Et. Lép. comp. 18.—*M. hecuba* ssp. n. *werneri* Colombia p. 296, HOPP D. ent. Zs. 1921.

Mycalesis asochis congoensis subsp. n., *persimilis* sp. n. Ruwenzori pl. xiii figs. 38-40, JOICEY & TALBOT p. 76 Bull. Hill Mus. 1.—*M. siamica* sp. n. Siam p. 170, RILEY & GODFREY J. Nat. hist. soc. Siam 4.—*M. cooksoni* f. n. *littor* p. 239, *saussurei* subsp. n. *suffusa* p. 240 Rhodesia, RILEY Trans. ent. soc. London 1921.

Oeneis oeno, male genitalia, McDUNOUGH p. 83 fig. Canad. Ent. 53.

Pararge egeria var. *egerides*, seasonal dimorphism p. 25, FRINGS Soc. Entomol. 36; pp. 42-43 STAUDER T.c.

Pararge megaera iranica subsp. n. Mesopotamia p. 592, RILEY Ann. Nat. Hist. 8.—*P. eversmanni* var. *lugens* var. n. Turkestan p. 93, NIEFELT Int. ent. Zs. 15.

Ragadia critias sp. n. Siam p. 171, RILEY & GODFREY J. nat. hist. soc. Siam 4.—*R. crisilda crisildina* subsp. n. Hainan p. 174 pl. xxiii f. 22, JOICEY & TALBOT Bull. Hill Mus. 1.

Satyrus circe ssp. n. *asperomontana* p. 28, *defecta* f. n. p. 29, *semele* ff. n. *blachieroides*, *neapolitana*, *statilinus* f. n. *pseudosichaea*, *cordula* ff. n. *penastigma*, *excedens*, *subtusviolacea* p. 29, *megalomma* p. 30, STAUDER D. ent. Zs. Iris 35.—*S. enervata* and *persephone*, distinguished, RILEY p. 592 Ann. Nat. Hist. 8.

Stichophthalma cambodia subsp. n. *editha* Siam p. 173, RILEY & GODFREY J. Nat. hist. soc. Siam 4.—*S. noumahal chuni* p. 172 pl. xxiii f. 18, *howqua bowringi* f. 19, *neumogeni* f. 20 p. 173, subsp. n. Hainan, JOICEY & TALBOT Bull. Hill. Mus. 1.

Taenaris bioculatus avara, *catops jathrippa* subsp. n. Dutch N. Guinea p. 65, FRUHSTORFER Arch. Natg. 81 Abt. A Heft 11.

LIBYTHEIDAE.

Libytheidae, geographical distribution, with some synonymy, pp. 248-296, HERING Arch. Natg. 87 Abt. Heft 4.

ERYCINIDAE.

Abisara barnsi sp. n. Semliki p. 77 pl. xiii figs. 41 and 42, JOICEY & TALBOT Bull. Hill Mus. 1.

Dodona aponata ssp. n. *vanleeuwenii* Java p. 85, ROEPKE Treubia Buitenzorg 2.

Laxita telesia bouletti Fruhst., ♂ described, RILEY & GODFREY J. nat. hist. soc. Siam 4.

LYCAENIDAE.

Revision of the genus *Lampides*, FRUHSTORFER pp. 1-46 pls. i, ii Arch. Natg. 81 A 6 1916.

Alaena madibirensis sp. n. Germ. E. Africa p. 195, WICHGRAF Int. ent. Zs. 14.

Allotinus posidion subsp. n. *rekia*, *drumila* subsp. n. *grisea* Siam p. 180, RILEY & GODFREY J. nat. hist. soc. Siam 4.

Aloeides griseus sp. n. p. 251, *molomo* subsp. n. *mumbuenensis* p. 250, Rhodesia, RILEY Trans. ent. soc. London 1921.

Aphnaeus affinis sp. n. Rhodesia p. 250, RILEY Trans. ent. soc. London 1921.—*A. epargyrus marginalis* subsp. n. N.W. Persia, RILEY p. 598 Ann. Nat. Hist. 8.—*A. orcas* v. *heliodoros* var. n. Cameroons p. 112, SCHULTZE Arch. Natg. 81 Abt. A. Heft. 11.

Argiolaus silarus iturensis subsp. n. p. 91, JOICEY & TALBOT Bull. Hill Mus. 1.

Arhopala pagaiensis p. 128 figs. *woodii* p. 129, fig., spp. n., Tavoy OLLENBACH J. Bombay Nat. Hist. Soc. 28.—*A. dispar* sp. n. p. 183, *opalina* ♀ described p. 184, *andamanica* subsp. n. *ignara* p. 185 Siam, RILEY & GODFREY J. nat. hist. soc. Siam 4.

Aricia astrarche ab. n. *cuneata* p. 249 figs., CARTER Entomol. 54.

Azanus urios sp. n. Siam p. 182, RILEY & GODFREY J. nat. hist. soc. Siam. 4.—*A. rubropuncta* sp. n. Madagascar p. 208, LATHY Ann. Nat. Hist. 8.

Catochrysops celeus kivuensis subsp. n. p. 99 pl. xvi figs 91-93, *kisaba* sp. n. Kivu p. 100 figs 94 and 95, JOICEY & TALBOT Bull. Hill Mus. 1.

Chrysophanus dispar, in Holland, OBERTHÜR p. 15 Bull. Soc. ent. France 1921.—*C. doritis* ssp. n. *reverdini* p. 30, STAUDER D. ent. Zs. Iris 35.

Citrinophila terias sp. n. Ituri p. 82 pl. xiv f. 53, JOICEY & TALBOT Bull. Hill Mus. 1.

Cupidesthes cuprifuscia, minor pl. xv. figs. 82 and 83, spp. n. C. Africa, JOICEY & TALBOT p. 95 Bull. Hill Mus. 1.

Cupido negus f. *wau* f.n. E. Sudan p. 172, WICHGRAF Int. ent. Zs. 14.

Cyaniris ludon ab. n. *nunenmacheri* California p. 159, STRAND Arch. Natg. 80 A 11 1915.

Epamera fuscomarginata p. 91 pl. xv figs. 70 and 71, *barnsi* figs. 66 and 67, *frater* figs 68 and 69, p. 92, spp. n. C. Africa, JOICEY & TALBOT Bull. Hill Mus 1.

Epitola ammon p. 83 pl. xiv figs 60 and 61, *viridana* p. 84 figs. 58 and 59, *iturina* p. 85 f. 62 spp. n. C. Africa, *urania tanganyikensis* subsp. n. p. 86 pl. xiv f. 63, JOICEY & TALBOT Bull. Hill Mus. 1.

Eresina toroensis sp. n. Ituri p. 83 pl. xiv figs. 54 and 55, JOICEY & TALBOT Bull. Hill Mus. 1.

Everes argiades, etc., variation and biology, pp. 42-52, REHFOUS Bul. Soc. Lep. Genève 4 1918.

Freyeria gen. n. for (*Chilades*) *trochylus* F. p. 234, COURVOISIER D. ent. Zs. Iris 34 1920.

Gerydus ancon siamensis Godfrey ♀ described p. 179, RILEY & GODFREY J. nat. hist. soc. Siam 4.

Heodes thersamon kurdistanica subsp. n. Perisa p. 598, RILEY Ann. Nat. Hist. 8.

Hewitsonia beryllina sp. n. Kamerun p. 163, SCHULTZE Arch. Natg. A 81 H 7 1915.—*H. kirbyi* f.n. *intermedia* p. 86 pl. xv f. 65, *bitjeana* = (*beryllina* Sch.) p. 87, *boisduvali congoensis* subsp. n. p. 87 pl. xiv f. 64, JOICEY & TALBOT Bull. Hill Mus. 1.—*H. boisduvali v. borealis* var. n. Cameroons p. 111, SCHULTZE Arch. Natg. 81 Abt. A Heft 11.

Hypokopelates ituri f.n. *lineosa* p. 89, *canescens* sp. n. Tanganyika p. 90 pl. xv figs. 72 and 73, JOICEY & TALBOT Bull. Hill Mus. 1.

Hypolycaena erylus walteri n.n. for *pseudophorbos* R. p. 69, FRUHSTORFER Arch. Natg. 81 Abt. A Heft 11.—*H.*

buxtoni puella subsp. n. p. 93 pl. xv figs. 75 and 76, *japhusa* ♂ figs. 77 and 78, JOICEY & TALBOT Bull. Hill Mus. 1.—*H. japhusa* sp. n. Rhodesia p. 246, RILEY Trans. ent. soc. London 1921.

Jolaus sciophilus, sp. n. Kamerun p. 165, SCHULTZE Arch. Natg. A 81 H 7 1915.

Lampides celeno celeno forma n. *elpinides* Assam p. 4, *celeno* subsp. n. *tissama* Ceylon p. 4, *celeno* subsp. n. *arama*, with forma n. *zebrina* Nias p. 5; *celeno* subsp. n. *eyria* Engano p. 5, fig. 1; *celeno* subsp. n. *ruvana*, with formae n. *parazebra* and *gennadii* Java p. 5; *celeno* subsp. n. *sundara* Banda, *sandva* Halmahera p. 6; *cleodus* subsp. n. *semperi* Mindoro, *manias* Mindanao, *potidalon* Bazilan, *trichonis* Palawan, *tydanus* Celebes p. 7; *suidas* subsp. n. *spitamenes* Obi p. 7, *eordia* Palawan p. 8, *tenuis* Borneo p. 8; *suidas* forma n. *parasaturata* Java p. 8, fig. 5; *suidas* subsp. n. *celinus* Sumatra p. 9; *kondulana* subsp. n. *paliassa* Sikkim p. 9, *croculana* Andaman Is, *jambia* patria?, *sydra* Java p. 10, *baweanu* Bawean, *gerra* Palawan, *phaliga* Bazilan, *saunda* Obi, *espada* Celebes p. 11, *comeda* Tana Djampea p. 12, *piepersi* Java p. 43; *kankena* subsp. n. *metallica* Java p. 13; *cunilda* subsp. n. *aditja* Borneo p. 13, *nisanca* Malay Pen. p. 14; *callistus* subsp. n. *amastris* Mindanao *neaethus* Mindoro, *cleitus* Bazilan p. 15; *alsietus* sp. n. Bazilan p. 15 fig. 11; *alsietus* subsp. n. *sabatus* Palawan p. 16; *abdul* subsp. n. *hamid* Nias p. 16; *elpis* subsp. n. *dromicus* Formosa, *eurysaces* Assam p. 17; *elpis eurysaces* forma n. *ozea* Sikkim p. 18; *elpis* subsp. n. *meilichius* Ceylon, *thanetus* Nias p. 18, *ageladas* Sumatra, *raiatius* Malay Pen., *eurys-thenes* Sumbawa, *alvenus* Saleyer p. 19; *argentiferus* Celebes, *demetrius* Sula? *cytinus* New Guinea p. 20; *aratus* subsp. n. *ezeon* Banda, *pseudaratus* Obi, *minthe* Sula, *nausiphanes* Palawan, *tryphiodorus* Java p. 22; *aetherialis* subsp. n. *sestus* Timor, *univina* Halmahera, *avrus* New Guinea, p. 23, *duvana* Dampier p. 24; *philatus* subsp. n. *arius* Sumatra p. 24, *arcaseius* Nias, *athanelus* Java, *armatheus* Borneo, *andrus* Bazilan, *aegithus* Waigiu, p. 25; *amphissa* subsp. n. *courvoisieri* Nias, p. 26, *leiothrix* Engano, *vardusia* Java, *viosa* Lombok p. 27, *zelea* Celebes,

megdora Obi, *hellada* Sula, *madara* Key p. 23; *nemea* subsp. n. *ccheilea* (sic) Celebes, *sanava* Obi, p. 29; *aleuas* subsp. n. *sarsina* Aru p. 31, *pholes* New Guinea, *sarmice* New Mecklenburg p. 32; *paralectus* subsp. n. *elath* New Mecklenburg p. 33; *euchylas* subsp. n. *phasis* Roon p. 34; *bochus* subsp. n. *enganicus* Engano, *nabonassar* Borneo, *phaneas* Lombok p. 36, *herdonius* Wetter, *soarchad* Key, *polassar* Obi, *toscius* Halmaheira, *phaidon* Celebes, *tiglath* Sula p. 37, *herodicus* Luzon, *georgi* Philippines, *formosanus* Formosa, *palauensis* Palau p. 38; FRUHSTORFER Arch. Natg. 81 A 6 1916.

Liphyra brassolis var. *lugens* var. n. Bismarck Arch. p. 92, NIEPELT Int. ent. Zs. 15.

Liptena ilma lathyi subsp. n. p. 82 pl. xiv f. 52, JOICEY & TALBOT Bull. Hill Mus. 1.

Lycaena argus variation, REHFOUS p. 11 Bul. Soc. Lep. Genève 4 1918.—*L. arion* subsp. n. *shiranensis* Japan p. 25, SCRIBA Ent. Rundsch. 38.—*L. coridon* var. n. *borussia* p. 23 and biology, LANGE D. ent. Zs. Iris 33 1919.—*L. dama karinda*, *damone damalis*, subsp. n. Persia p. 597, RILEY Ann. Nat. Hist. 8.—*L. damon* v. *scheffeli* = (*L. damon maculata* Rev.) p. 95, LÜTKEMEYER Ent. Zs. 34.—*L. eumedon* f. n. *meridionalis* p. 30, *dolus* ff. n. *crassipuncta*, *obsoleta*, *exoculata* p. 31, STAUDER D. ent. Zs. Iris 35.—*L. euphemus* full-grown larva pp. 327–330 plate, CHAPMAN Trans. ent. soc. London 1920 (1921).—*L. semiargus* ab. n. *lutea* p. 39, REVERDIN Bul. Soc. Lep. Genève 4 1918.—*L. taurica* sp. n. Taurus p. 49, VENZMER D. ent. Zs. Iris 34 1920; discussion, STAUDER T.c. 35 pp. 4–5 1921.—*L. thersites* biology and anatomy p. 133, REHFOUS Bul. Soc. Lep. Genève 4.

Lycaenesthes madibirensis sp. n. Germ. E. Africa p. 179, WICHGRAFF Int. ent. Zs. 14.—*L. mabiliei* sp. n. Madagascar p. 208, LATHY Ann. Nat. Hist. 8.—*L. discimacula* pl. xvi figs. 87 and 88, *bipuncta* pl. xv figs. 84 and 85 and pl. xvi f. 86, spp. n. C. Africa p. 96 JOICEY & TALBOT Bull. Hill Mus. 1.

Oboronia rutshurensis sp. n. Kivu p. 99 pl. xvi f. 90, JOICEY & TALBOT Bull. Hill Mus. 1.

Pentila auga congoensis subsp. n. p. 81 pl. xiv f. 51, JOICEY & TALBOT Bull. Hill Mus. 1.

Phytala obscura sp. n. S. Fernando Po p. 142, SCHULTZE Arch. Natg. 81 Abt. A Heft 12.

Plebeius insularis in Europe = (*ligurica* Rev.) races, VERITY p. 175 Ent. Rec. 33.

Polyommatus peilei sp. n. W. Persia p. 63, BETHUNE-BAKER Ent. Rec. 33

Poritia karenia sp. n. Karen Hills, pp. 35 36, *gela* subsp. n. *regia* Mergui p. 37, *dawna* sp. n. E. Dawnas p. 37, EVANS J. Bombay Nat. Hist. Soc. 28.

Pseuderesia naevai sp. n. Semliki p. 80 pl. xiv figs. 49 and 50, JOICEY & TALBOT Bull. Hill Mus. 1.

Rapala sphinx subsp. n. *intermedia* Tavoy p. 131 fig. *subguttata* female described p. 132 fig., OLLENBACH J. Bombay Nat. Hist. Soc. 28.

Rumicia phlaeas f. n. *cyrenaica* p. 219, TURATI Atti. soc. ital. sci. Nat. 60.

Spindasis buchanani sp. n. Kano p. 155, ROTHSCHILD Novit. zool. 28.—*S. cynica* sp. n. Rhodesia p. 247, RILEY Trans. ent. soc. London 1921.

Strymon marcidus sp. n. Perisa p. 600, RILEY Ann. Nat. Hist. 8.—*S. melinus* var. n. *atrofasciata*, McDUNNOUGH p. 47 Canad. Ent. 53.

Tajuria jehana ceylanica subsp. n. p. 206, RILEY Entomol. 54.

Talicada metana sp. n. Siam p. 181, RILEY & GODFREY J. nat. hist. soc. Siam 4.

Tanuetheira prometheus congoensis subsp. n. p. 90 pl. xv f. 74, JOICEY & TALBOT Bull. Hill Mus. 1.

Telipna citrimaculata sp. n. S.E. Cameroons p. 141, SCHULTZE Arch. Natg. 81 Abt. A Heft 12.—*T. angustifascia* p. 77 pl. xiv f. 43, *subhyalina* p. 78 f. 48, *plagiata* p. 79 figs. 44 and 45, *hollandi* p. 80 figs. 46 and 47, spp. n., C. Africa, JOICEY & TALBOT Bull. Hill Mus. 1.

Triclema ituriensis sp. n. p. 98 pl. xvi figs. 89 and 90, JOICEY & TALBOT Bull. Hill Mus. 1.

Virachola livia pallescens subsp. n. Asben, ROTHSCHILD p. 154 Novit. zool. 28.

Zeltus antifaunus latimacula subsp. n. C. Africa p. 94 pl. xv figs. 79 and 81, JOICEY & TALBOT Bull. Hill Mus. 1.

Zephyrus quercus longicauda subsp. n. N.W. Persia p. 599, RILEY Ann. Nat. Hist. 8.

HESPERIIDAE.

Indian Hesperiid butterflies, BELL pp. 431-447, pl., figs., pp. 778-793 J, Bombay Nat. Hist. Soc. 27.

Genitalia of *Pamphilinae* (*Parnara*, *Halpe* &c.), figs., pp. 170-188, ORMISTON Spolia Zeylan. 11 1919.

Adopaea novissima sp. n. Cyrenaica p. 221, TURATI Atti. soc. ital. sci. Nat. 60.

Augiades sylvanus, extrusion of moisture to soften food substances, p. 1, DIETZE Ent. Rdsch. 38.

Butleria bubobon sp. n. Mexico p. 137, DYAR Insector Ins. Menstr. 9.

Celaenorrhinus mozeeki kivuensis sp. n. (sic) p. 102, JOICEY & TALBOT Bull. Hill Mus. 1.

Ceratrachia flora semlikensis subsp. n. p. 102 pl. xvi figs. 98-100, JOICEY & TALBOT Bull. Hill Mus. 1.

Cogia grandis sp. n. Brazil p. 181, RILEY Entomol. 54.

Crossiura penicillatum insularis subsp. n. Hainan pl. xxiv figs. 26 and 27 p. 176, JOICEY & TALBOT Bull. Hill Mus. 1.

Daimio phisara tenebrosa subsp. n. Hainan p. 176, JOICEY & TALBOT Bull. Hill Mus. 1.—*D. thetys* f. n. *daiseni* p. 181, RILEY Entomol. 54.

Eagris jamesoni ab. *kigonserensis* ab. n. Kigonsera p. 180, WICHGRAF Int. ent. Zs. 14.

Eretis herewardi sp. n. Rhodesia p. 255, RILEY Trans. ent. soc. London 1921.

Hasora proxissima Elw. and Edw., ♀ described p. 189, RILEY & GODFREY J. nat. hist. soc. Siam 4.

Hesperia syrichtides sp. n. America p. 106, REVERDIN Bul. Soc. Lép.

Genève 4 1919.—*H. notata* ab. n. *scabellata* p. 185, REVERDIN T.C.—*H. syrichtides* and *syrichtus*, *syrichtus* = *fumosa* Rev., BARNES & LINDSAY p. 78 Ent. News 32.—*H.*, food plants, p. 141, REHFOUS Bul. Soc. Lép. Genève 4.—*H.* critical observation on, REVERDIN Bul. Soc. Lép. Genève 4 pp. 167-185, figs.

Lotongus avesta quinquepuncta subsp. n. Hainan p. 176 pl. xxiv f. 28, JOICEY & TALBOT Bull. Hill Mus. 1.

Orses metallica sp. n. Brazil p. 183, RILEY Entomol. 54.

Orthophaetus barroni sp. n. Siam, p. 187 RILEY & GODFREY J. Nat. Hist. Soc. Siam 4.

Pamphila palaemon ab. *habeneyi* ab. n. Giessen p. 144, SEGEL Int. ent. Zs. 15.—*P. ottoe* f. n. *ogallala*, LEUSSLER p. 207 Ent. News 32.—*P. byssus* = (*Atrytone kumsaka* Sc.), SKINNER p. 276 Ent. News 32.

Parata canostigma sp. n. Hainan p. 174, JOICEY & TALBOT Bull. Hill Mus. 1.

Parnara nyassae Hew. f. n. *ennuari* Rhodesia p. 257, RILEY Trans. ent. soc. London 1921.

Poanes hobomok ab. n. *pallida* p. 172, WATSON J. New York Ent. Soc. 29.

Pseudosarbia flavofasciata sp. n. Brazil p. 236, SKINNER Ent. News 32.

Pyrrhopyge sangaria sp. n. Colombia p. 36, SKINNER Ent. News 32.

Sarangesa hopkinsi sp. n. Madras p. 39, EVANS J. Bombay Nat. Hist. Soc. 28.—*S. neavei* p. 252, *laelioides* p. 253, *maxima* f. n. *flava* p. 255, RILEY Trans. ent. soc. London 1921.—*S. pandaensis* sp. n. C. Africa p. 101 pl. xvi f. 97, JOICEY & TALBOT Bull. Hill Mus. 1.

Satarupa ouvrardi p. 74, *valentini* p. 75, *monbeigi* p. 76, pls. Y and Y bis, spp. n., Chino-Tibetan region, pt. 1, OBERTHÜR Et. Lép. comp. 18.

Tagiades bowringi sp. n. Hainan p. 175 pl. xxiv. figs. 24 and 25, JOICEY & TALBOT Bull. Hill Mus. 1.

Thracides verecundus sp. n. Amer. mer. p. 182, RILEY Entomol. 54.

Heterocera.

Male genitalia of *Microlepidoptera* and their systematic importance, BUSCK & HEINRICH Proc. ent. Soc. Washington 23 pp. 145-152, 2 pls.

Moths of Barkuda island pp. 377-379, DOVER Rec. Ind. Mus. 22.

CASTNIIDAE.

Castnia duckei, erniliae spp.n. Brazil p. 1, FASSL Ent. Rundsch. 38.

Pemphigostola, position queried, JORDAN p. 73 Novit. Zool. 28.

AEGERIIDAE (OT SESIIDAE).

Chimaerosphecica gen. n. *aegerides* sp. n. Formosa p. 46, STRAND Arch. f. Naturg. 81 A. Hft. 8 1915.

Melittia eurytion, ab. *microfenestrata* nov. Formosa p. 45, STRAND Arch. f. Naturg. 81 Abt. A Hft. 8 1915.

Oligophlebiella gen. n. *polishana* sp. n. Formosa p. 49, STRAND Arch. f. Naturg. 81 Abt. A Hft. 8 1915.

Paranthrene (?) *pilamicola*, P. (*Paranthrenella*) *formosicola* spp. n., Formosa p. 47, STRAND Arch. Natg. 81 A H. 8 1915.

Sanninoidae opalescens, life-history, LATHROP & BLACK J. econ. Ent. 14 pp. 329-336.

Sesia cephiiformis ab. n. *fumosa* p. 120, SCHUTZE D. ent. Zs. Iris 32, 1919.

Trilochana, heteromorphism of sexual characters, p. 84, LE CERF Proc. ent. soc. London 1920 1921.

SPHINGIDAE.

Life history of Oriental *Sphingidae*, FELLOWES-MANSON pp. 745-753, J. Bombay Nat. Hist. Soc. 27.

The wing-design of *Chaerocampinae*, BEMMELEN pp. 738-747 figs. 1-3, P. Ak. Amsterdam 22 1920.

Acentropoclanis gen. n. for *Clanis bicolor*, STRAND p. 132, Arch. Natg. 81 A. 2 1915.

Cechenea helops interposita subsp. n. Ceram p. 108, JOICEY & TALBOT Entomol. 54.

(N-17041 j) q

Celerio euphorbiae f. *jachani* f. n. p. 62, CLOSS Int. ent. Zs. 15.—*C. euphorbiae* ssp. n. *strasillai* p. 31, STAUDER D. ent. Zs. Iris 35. *C. lineata* ssp. n. *saharae* p. 179, STAUDER T.c.—*Celerio* × *Pergesa* hybrids p. 17, SCHNEFF Ent. Rundsch. 38.

Chaerocampa elpenor ab. nov. *philippsi* p. 41, NIEFELT Jahresh. Ver. Ins. Breslau 13.

Clanis pratti, Ceram p. 105, *hawkeri* Indo-China p. 106, spp. n., JOICEY & TALBOT Entomol. 54.

Deilephila gigantea sp. n. New Guinea p. 11, RÖBER Ent. Rundsch. 38.—*D. euphorbiae* and *Chaerocampa elpenor*, hybrids, pp. 45-47, figs., CALMBACH Soc. Entomol. 36.

Heise luctifera W.=(*Timoria concolorata* K.), JOICEY & TALBOT p. 109 Entomol. 54.

Hippotion horus sp. n. Cameroons p. 24, RÖBER Ent. Rundsch. 38.

Hypaedia lobipennis figured, STRAND p. 131, fig. 1 Arch. Natg. 81 A. 2 1915.

Nephele leighi sp. n. Seychelles p. 107, JOICEY & TALBOT Entomol. 54.

Oxyambulyx ceramensis sp. n. p. 105, JOICEY & TALBOT Entomol. 54.

Pachygonia ribbei peruviana subsp. n. p. 107, JOICEY & TALBOT Entomol. 54.

Perigonia lusca bahamensis in Florida, DYAR p. 138, Insecutor Ins. Menstr. 9.

Polyptychus grayi niloticus subsp. n. p. 277, *delicatus* sp. n. Madagascar p. 278, figs., JORDAN Novit. Zool. 28.—*P. (?) burorum* sp. n. S. Africa, STRAND p. 131, Arch. Natg. 81 A. 2 1915.

Smerinthus, hybrids, TAYLOR Ent. Rec. 33 p. 177.

Taboribia wintgensii figured, STRAND p. 131, fig. 4 Arch. Natg. 81 A. 2 1915.

Theretra clotho, subspp. n. *manuelensis* and *papuensis*, JOICEY & TALBOT p. 108, *boisduvali*=(*Cechenea sumatrensis* J. and K.) p. 109, Entomol. 54.

Xylophanes clarki sp. n. Cuba p. 23, RAMSDEN Ent. News 32.

BOMBYCES. s.l.

The Physiology of the Silkworm, pp. 209-212, JAMESON & ATKINS Biochemic Journ. 15.

Some factors in the natural control of the wattle bagworm pp. 291-301 15 textfigs., SKATFE S. Afric. Journ. Sc. 17.

Amatidae, varieties of, described by Hampson, named by STRAND pp. 223-226 D. ent. Zs. Iris 34 1920; not given in detail below.

Anthelidae, revision, key, pp. 164-191, TURNER Proc. Linn. Soc. N. S. Wales 46.

Bombycidae of Formosa, STRAND pp. 123-124 Arch. Natg. 80 A 10 1915.

Cymatophoridae revision with keys to genera and spp. pp. 23-252 68 textfigs. 2 pls. HOULBERT Et. Lép. comp. 15 pt. 2.

Hypsidae, Australian, revision, key, pp. 159-163, TURNER Proc. Linn. Soc. N. S. Wales 46.

Notodontidae, Japan, Corea and Formosa, revision, key, pp. 273-359, pls. and textfigg., MARUMO J. Coll. Agric. Tokyo 6.

Zygaenidae of Formosa, STRAND pp. 117-122, Arch. Natg. 80 A. 10 1915.—*Zygaenidae*, figs. of genitalia plates A-D, BETHUNE-BAKER Proc. ent. soc. London 1920 1921.

Acraga cosmia v. *boliviana* var. n. Bolivia p. 280, HOPP Arch. Natg. 87 Abt. A Heft 2.

Acragopsis radians sp. n. Brazil p. 281, HOPP Arch. Natg. 87 Abt. A Heft 2.

Adelocephala subfumata sp. n. S.E. Brazil p. 174, SCHAUS Insecutor Ins. Menstr. 9.—*A. netitia* sp. n. Brazil p. 383, SCHAUS P. U. S. Mus. 59.

Aegocera brevivitta rectilineoides subsp. n. Nigeria p. 158, ROTHSCHILD Novit. zool. 28.

Afrida purulha sp. n. Guatemala p. 350, SCHAUS P. U. S. Mus. 59.

Agilia tau, larva figured pl. ii figs. 7-10 p. 223, WILEMAN Philippine J. Sci. 19.

Agylla arthona sp. n. Guatemala p. 349, SCHAUS P. U. S. Mus. 59.

Alatanadata latipennis figured p. 134 fig. 7, STRAND Arch. Natg. 81 A 2 1915.

Allodonta leucodera p. 304 figures, MARUMO J. Coll. Agric. Tokyo 6.

Amastus opharina sp. n. Brazil p. 168, SCHAUS Insecutor Ins. Menstr. 9.

Amaxia corata sp. n. S.E. Brazil p. 166, SCHAUS Insecutor Ins. Menstr. 9.

Anacraga luteola sp. n. Para p. 281, HOPP Arch. Natg. 87 Abt. A Heft 2.

Anadiasa sahariensis sp. n. Asben p. 218, ROTHSCHILD Novit. Zool. 28.

Ancarista gen. n. *Agaristidae* p. 73 for *Ovios laminifera* Saalm., JORDAN Nov. Zool. 28.

Anisota manitobensis sp. n. p. 75, McDUNNOUGH Canad. Ent. 53.

Anthela leucocera p. 170, *linopepla* p. 171, *hyperythra* p. 172, *habroptila* p. 173, *oressarcha* p. 177, *cnecias* p. 178, *ariprepes* p. 179, *tetrachrica* p. 181, *allocota* p. 182, *phaeodesma*, *pyrrhica* p. 183, spp. n., Australia, TURNER Proc. Linn. Soc. N. S. Wales 46.

Antheraea benguelensis sp. n. Benguela p. 76 pls. Z and Z bis pt. 1, OBERTHÜR Et. Lép. comp. 18.

Antheua radiata p. 240 sp. n. S. Africa, AURIVILLIUS Ann. S. Afric. Mus. 18.

Antiopha modica sp. n. Guatemala p. 384, SCHAUS P. U. S. Mus. 59.

Apisa subargentea sp. n. Ruanda p. 158, JOICEY & TALBOT Bull. Hill Mus. 1.

Arachnis midas sp. n. Utah p. 297, BARNES & LINDSEY Ent. News 32.

Araeomolis canalis sp. n. Panama p. 166, SCHAUS Insecutor Ins. Menstr. 9.

Arbelodes collaris p. 243 sp. n. S. Africa, AURIVILLIUS Ann. S. Afric. Mus. 18.

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Asota lacteata ab. *kosemponis* nov. Formosa p. 36, STRAND Arch. f. Naturg. 81 Abt. A Heft 8 1915.

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Cretonotus fulvomarginalis sp. n. E. Soudan p. 116, WICHGRAFF Int. ent. Zs. 15.—*C. punctivitta* ab. n. *notivitta* Bahr el Abiad p. 95, STRAND Arch. Natg. 80 A 10 1915.

Cropera unipunctata sp. n. Germ. E. Africa p. 93, WICHGRAFF Int. ent. Zs. 15.

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Lasiocampa quercus L. double cocoons, BELLING D. ent. Zs. 1921 pp. 106 and 268.—*L. quercus*, parthenogenesis in, p. 254, ROTHSCHILD Proc. ent. soc. London 1920 1921.—*L. quercus* f. n. *altaica* p. 16, RUDOLPH Notulæ Ent. 1.

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Ochrostigma japonica, *manleyi*, *punctatella* p. 339, figures, MARUMO J. Coll. Agric. Tokyo 6.

Eceticus platensis, biology, control, &c., pp. 619-627, MASSINI Prim. Reun. Nac. Sci. arg. Cienc. Nat. 1919.

Oreocossus occidentalis figured, STRAND p. 134 fig. 16 Arch. Natg. 81 A. 2 1915.

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Pecloptila nigrocristata sp. n. Rhodesia p. 166, JOICEY & TALBOT Bull. Hill. Mus. 1.

Pelusia uniformis sp. n. Persia p. 185, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.

Pergara discovata sp. n. Guatemala p. 385, SCHAUS P. U. S. Mus. 59.

Periga oculata sp. n. Brazil p. 173, SCHAUS Insecutor Ins. Menstr. 9.

Perola jorgenseni sp. n. Argentina p. 390, SCHAUS P. U. S. Mus. 59.

Perophora thermesia sp. n. Brazil p. 353, fig., JONES Proc. Zool. Soc. London 1921.

Piarosoma hyalina abb. n. *annulatis-sima*, *univittata*, Formosa p. 122, STRAND Arch. Natg. 80 A. 10 1915.

Phalacra multilineata f. *alikangiae* f. n. Formosa p. 162, STRAND Arch. Natg. 81 Abt. A Heft 12.

Phalera assimilis, *flavescens*, *combusta* pp. 284-285, figures, *angustipennis* = *fuscescens* p. 350, MARUMO J. Coll. Agric. Tokyo 6.

Phacusa silvestris, *horni*, spp. n. Formosa p. 121, STRAND Arch. Natg. 80 A. 10 1915.

Phaegorista prouti sp. n. Lufira p. 163 JOICEY & TALBOT Bull. Hill Mus. 1.

Phasicnecus gemmatus sp. n. Angola p. 19, WICHGRAFF Int. ent. Zs. 15.—*Ph. aequidistans* sp. n. German E. Africa p. 130, STRAND Arch. Natg. 81 A. 2 1915.

Phassus signifer var. (?) *kosemponis* var. n. Formosa p. 150, STRAND Arch. Natg. 81 Abt. A Heft 12.

Phauda mimica sp. n. Formosa p. 117, STRAND Arch. Natg. 80 A. 10 1915.

Pheosia octofasciata = *Drymonia lineata* p. 273, *dictaeoides* p. 325, figures, MARUMO J. Coll. Agric. Toyko 6.

Philanglaus beatrix sp. n. Guatemala p. 393, SCHAUS P. U. S. Mus. 59.

Philotherma rufescens sp. n. Germ. E. Africa p. 196, WICHGRAFF Int. ent. Zs. 14.

Phragmatoecioides gen. n. near *Phragmatoecia* p. 103, *pectinicornis* sp. n. Bahr el Abiad p. 103, STRAND Arch. Natg. 80 A. 10 1915.

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Roeselia varia sp. n. Arizona p. 295, BARNES & LINDSEY Ent. News 32.—*R. inga, trias*, spp. n., Peru p. 357, SCHAUS P. U. S. Mus. 59.

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Rothschildia morana sp. n. Guatemala p. 375, SCHAUS P. U. S. Mus. 59.

Salinunca styx and *thoracica*, relationship discussed p. 169, STRAND Arch. Natg. 80 A 12 1915.

Samia cynthia, larva figured pl. i figs. 1-5a p. 209, WILEMAN Philippine J. Sci. 19.—*S. euryalis* (= *ceanothi* and *rubra* Behr), McDUNNOUGH p. 191 Canad. Ent. 53.

Sapelia quinquepunctata sp. n. Germ. E. Africa p. 93, WICHGRAF Int. ent. As. 15.

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Saturnia, wing-patterns and relationships, BEMMELEN pp. 447-456 pl. P. Ak. Amsterdam 22 1920.—*S. hybr. hedvicæ* hybr. n. p. 75, CÁSTEK Int. ent. Zs. 15.

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Suana concolor Walk. biology pp. 299-302 1 plate, SENIOR-WHITE Spolia Zeylan. 11 1920.

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Trisuloides synonymy of species, STRAND p. 142, Arch. Natg. 80 A 8 1915.

Trisulopsis, generic status discussed, STRAND p. 167, Arch. Natg. 80 A 11 1915.

Trachea subviridis ab. *fuscogrisea*, *indistans* ab. *annulata*, *atriplicis* ab. *deviridata*, *leucodonta* ab. *aqualani*, *inordinata* ab. *columbiae* p. 152, *cinefacta* ab. *albertae*, *conciolata* ab. *yocohamae*, *cuneata* ab. *cuneatella*, *consummata* ab. *fusca*, *virilis*, *depunctata*, *prominens*, *rufomaculata* p. 153 ab. n., STRAND Arch. Natg. 81 Abt. A Heft 11.—*T. ? mancilla* sp. n. Guatemala p. 361, SCHAUS P. U. S. Mus. 59.

Trichoridia endroma ab. *endromides* p. 148, *ochraceorufida* p. 149, ab. n., STRAND Arch. Natg. 81 Abt. A Heft 12.

Trigonodesma bimacula sp. n. Philippines p. 203, WILEMAN & SOUTH Entomol. 54.

Triphaena formalis ab. *faculoides*, *faculella*, *faculana*, *variata* ab. *orbitis*, *alternata* ab. *alternatella*, p. 146, *uniformis* p. 147 ab. n., STRAND Arch. Natg. 81 Abt. A Heft 12.

Ufeus unicolor ab. *coloradica* ab. n. p. 146, STRAND Arch. Natg. 81 Abt. A Heft. 12.

Valeria viridimacula ab. *deviridata* ab. n. p. 148, STRAND Arch. Natg. 81 Abt. A Heft 12.

Wallerella gen. n. p. 62, *Noctuidae* (*Cuculliinae*) *eudesmia* sp. n. Arizona p. 62, DYAR Insecutor Ins. Menstr. 9.

Xanthothrix stagmatogon sp. n. Mexico p. 64, DYAR Insecutor Ins. Menstr. 9.

Xestia miniago ab. *antennalis* ab. n. p. 146, STRAND Arch. Natg. 81 Abt. A Heft 12.

Zale plumbimargo sp. n. Peru p. 20 pl. iii f. 6, PROUT Ann. Nat. Hist. 8.

DIOPTIDAE.

Dioptis symoides sp. n. Costa Rica, *pallene*, remarks on, p. 115, STRAND Arch. Natg. 80 A. 10 1915.

Lauron ergolis and *syma*, remarks on, pp. 115-116, STRAND Arch. Natg. 80 A. 10 1915.

GEOMETRIDAE, EPIPLEMIDAE,
URANIIDAE.

Abraxas grossulariata, varr. pp. 128-135, var. n. *melanapicata* p. 135, PORRITT Ent. Mag. 57.

Acasis marise sp. n. Calabria p. 29, fig. pp. 30 & 40, STAUDER Soc. Entomol. 36.

Acidalia strigaria ab. n. *rehfousaria* p. 12, CULOT Bul. Soc. Lep. Genève 4 1918.—*A. submutata* ab. n. *cyanata* p. 123, SCHAWERDA D. ent. Zs. Iris 35.

Adeixis griseata, valid, PHILPOTT p. 339 Tr. N. Z. Inst. 53.

Alaplena gen. n. p. 352 *Uraniidae*, *castraria* sp. n. Brazil p. 352, fig., JONES Proc. Zool. Soc. London 1921.

Anemopsyche charmione lufira pl. xviii f. 1, PROUT p. 154 Bull. Hill Mus. 1.

Anisodes bizaria p. 343 fig., *paranaria*, *carolina*, *japaria*, p. 344 figs., *antennaria*, *vigoraria*, p. 345 figs., spp. n., Brazil, JONES Proc. Zool. Soc. London 1921.

Apicia strigularia p. 330 fig., *geminimacula* p. 331 fig., spp. n., Brazil, JONES Proc. Zool. Soc. London 1921.

Aplogompha castraria p. 327 fig., *fumaria* p. 328 fig., *setinaria* p. 328 fig., *yaponaria* p. 328 fig., spp. n., Brazil, JONES Proc. Zool. Soc. London 1921.

Asthenotricha semidivisa euchroma subsp. n. p. 147 pl. xviii f. 22, *straba* pl. xviii f. 11, Congo, *malostigma* Kivu fig., p. 148, spp. n., PROUT Bull. Hill Mus. 1.

Azelina hanebaria, *cetana*, spp. n., Brazil, p. 336, figs., JONES Proc. Zool. Soc. London 1921.

Bagodares castra sp. n. Brazil p. 332 fig., JONES Proc. Zool. Soc. London 1921.

Boarmia nigraria sp. n. Brazil p. 338 fig., JONES Proc. Zool. Soc. London 1921. *B. subscudularia* sp. n. Sicily etc. p. 314 pl. iv figs. 25-26, TURATI Naturalista Sicil. 23.

Bupalus piniarius varr. n. *wolffi*, *rautheri* p. 166, KRAUSSE Arch. Natg. 82 Ab. A Heft 5 1915.

Callurapterya paularia sp. n. Brazil p. 329 fig., JONES Proc. Zool. Soc. London 1921.

Calostigia phiara sp. n. Congo p. 144 pl. xviii f. 9, PROUT Bull. Hill Mus. 1.

Camptonema gen. n. p. 334 *Geometridae*, *marginata* sp. n. Brazil p. 334 fig., JONES Proc. Zool. Soc. London 1921..

Cidaria achromaria ff. n. *calcearia*, *fasciata*, p. 58, WEHRLI D. ent. Zs. Iris 34 1920.

Cleora inaequipicta sp. n. C. Africa p. 150 pl. xviii f. 14, PROUT Bull. Hill Mus. 1.

Cosymbia pendularia, the correct name for the North American *lumenaria*, BLACKMORE p. 168 Canad. Ent. 53.

Cratoptera fenestraria sp. n. Brazil p. 331 fig., JONES Proc. Zool. Soc. London 1921.

Eariodes flavicilia, *bimaculata*, spp. n., Brazil, p. 330 figs., JONES Proc. Zool. Soc. London 1921.

Eois lutearia sp. n. Brazil p. 346 fig., JONES Proc. Zool. Soc. London 1921.—*E. gressigenes* sp. n. Tanganyika p. 139 pl. xviii f. 12, PROUT Bull. Hill Mus. 1.

Epiplema costilinea sp. n. C. Africa p. 165, JOICEY & TALBOT Bull. Hill Mus. 1.—*E. ornata* p. 350 fig., *rectangularia* p. 351 fig., spp. n., Brazil, JONES Proc. Zool. Soc. London 1921.

Epirranthis pulvesator Thnbg. habitat, p. 81, CANDEZE Bull. ent. soc. Belg. 3.

Epirrhoe euthygramma sp. n. Congo pl. 46 pl. xviii f. 8, PROUT Bull. Hill Mus. 1.

Ereunetea acrogyra sp. n. Tanganyika p. 153 pl. xviii figs. 3 & 4, PROUT Bull. Hill Mus. 1.

Eucosmia undulata v. *palaeartica* var. n. Estland to Berlin p. 6, BRYK Int. ent. Zs. 15.

Euphyia altispez sp. n. Congo p. 144 pl. xviii f. 10, PROUT Bull. Hill Mus. 1.

Eupithecia cuprearia p. 342 fig., *mauvaria*, *aquanivaria*, p. 343, figs., spp. n., Brazil, JONES Proc. Zool. Soc. London 1921.

Gnophos dilucidaria, biology, p. 132, LACREUZE Bul. Soc. Lep. Genève 4.—*G. furvata* f. n. *cinerascens* Italy p. 319 pl. iv fig. 27, TURATI Naturalista Sicil. 23.

Haemalia mantaria p. 345 fig.,
magitaria p. 346 fig., *spp. n.*, Brazil,
JONES Proc. Zool. Soc. London 1921.

Haematurga atomaris var. *n. felicis*
p. 166, KRAUSSE Arch. Natg. 81 Abt. A
Heft 5 1915.

Hydretia sjoestedti mionoseista subsp.
n. Congo p. 147 fig., PROUT Bull. Hill
Mus. 1.

Hydriomena coeruleata f. *n. beryllata*
Germany p. 93, DADD D. ent. Zs.
1921.

Hymenomima sinuosaria p. 338 figs.,
nivacaria p. 339, fig., *spp. n.* Brazil,
JONES Proc. Zool. Soc. London 1921.

Hypolepis bella *sp. n.* Brazil p. 341
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1921.

Hypoplectis zannoni *sp. n.* Cyrenaica
p. 312 pl. iv fig. 29, TURATI Naturalista
Sicil. 23.

Hyria gemmaria *sp. n.* Brazil p. 348
fig., JONES Proc. Zool. Soc. London
1921.

Hyriogona santaria p. 348 fig.,
montaria p. 349 fig., *spp. n.* Brazil,
JONES Proc. Zool. Soc. London 1921.

Isochromodes elegantaria *sp. n.* Brazil
p. 335 fig., JONES Proc. Zool. Soc.
London 1921.

Labidiopterix stulta *sp. n.* Congo p.
149 pl. xviii f. 20, PROUT Bull. Hill
Mus. 1.

Larentia Germany many abb. *n.*
pp. 138-179, LANGE D. ent. Zs. Iris
35.—*L. alpinata* *sp. n.* (non descr. !) p.
78, CULOT Bul. Soc. Léop. Genève 4
1919.—*L. verberata* ab. *n. reverdini* p.
140, CULOT Bul. Soc. Léop. Geneva 4.—
L. cambrica life history p. 211, LANGE
D. ent. Zs. Iris 34 1920.—*L. luteata*
larva corrections p. 226, LANGE T.c.
—*L. juniperata* phenology, LAVALLÉE
Bull. Soc. ent. France 1921 pp. 49 &
50.—*L. silaceata* ab. nov. *wehrlii* p. 42,
NIEBELT Jahresh. Ver. Ins. Breslau 13.
—*L. barnsi* *sp. n.* Ruwenzori p. 141 pl.
xviii f. 5, PROUT Bull. Hill Mus. 1.

Larentiopsis *gen. n.* Geometridae p.
339, *costiplaga* *sp. n.* Brazil f. 340,
JONES Proc. Zool. Soc. London 1921.

Lygris variation pp. 6-8, ZÖLLNER
D. ent. Zs. Iris 33 1919.—*L. pyropata*
ab. *n. flavobasata* p. 1, *subnigra* p. 5,
ZÖLLNER T.c.

Merocausta felinaria *sp. n.* Brazil p.
327 fig., JONES Proc. Zool. Soc. London
1921.

Mesoleuca albicillata f. *n. vestata*
Germany p. 94, DADD D. ent. Zs.
1921.

Metasiopsis proutaria *sp. n.* Brazil p.
349 figs., JONES Proc. Zool. Soc. London
1921.

Nedusia castra *sp. n.* Brazil p. 352
fig., JONES Proc. Zool. Soc. London
1921.

Nephodia bonitaria, paularia, spp. n.
Brazil p. 337 figs., JONES Proc. Zool.
Soc. London 1921.

Notoreas arcuata *sp. n.* New Zealand
p. 338, PHILPOTT Tr. N. Z. Inst. 53.

Numia strigularia *sp. n.* Brazil p.
333 fig., JONES Proc. Zool. Soc. London
1921.

Nychiodes obscuraria variation and
new forms p. 105, WAGNER D. ent.
Zs. Iris 33 1919.

Oospila altonaria *sp. n.* Brazil p. 349
fig., JONES Proc. Zool. Soc. London
1921.

Ophthalmophora columbaria *sp. n.*
Brazil p. 329 fig., JONES Proc. Zool.
Soc. London 1921.

Ozola pica *sp. n.* Luzon p. 238, WILE-
MAN & SOUTH Entomol. 54.

Oxydia pallidaria *sp. n.* Brazil p. 334
fig., JONES Proc. Zool. Soc. London
1921.

Pitthea sospes *sp. n.* Rhodesia pl.
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Polla acutaria *sp. n.* Brazil p. 332
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1921.

Prasinocyma neglecta *sp. n.* Tangan-
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1.

Psaliodes aurantaria *sp. n.* Brazil p.
342 fig., JONES Proc. Zool. Soc. London
1921.

Psodos wehrlii sp. n. (non-descript.!) p. 132, CULOT Bul. Soc. Léop. Geneva 4.—*P. müller-rutzi* n. hybrid p. 55, WEHRLI D. ent. Zs. Iris 34 1920.

Ptychopoda terminaria p. 346 fig., *delicataria*, *campinaria*, *lilacaria* p. 347 figs., spp. n. Brazil, JONES Proc. Zool. Soc. London 1921.

Rhodomene santaria p. 340 fig., *paularia* p. 341 fig., spp. n. Brazil, JONES Proc. Zool. Soc. London 1921.

Saccoploca strigaria sp. n. Brazil p. 351 fig., JONES Proc. Zool. Soc. London 1921.

Sarcinodes (?) *mongaku* sp. n. Japan p. 263 pl. xx ff. 6-8, MARUMO J. Coll. Agric. Tokyo 6.

Scodiona cinnamomearia sp. n. Cyrenaica p. 322 pl. iv fig. 30, TURATI Naturalista Sicil. 23.

Selidosema taeniolaria f. n. *extensaria* N. Italy p. 323 text-figs., TURATI Naturalista Sicil. 23.—*S. plumaria intermedia fumosa* ab. n., TURNER p. 36 Ent. Rec. 33.—*S. modica* sp. n. New Zealand p. 339, PHILPOTT Tr. N. Z. Inst. 53.

Stamnodes notes on species, ALPHÉRAKY pp. 112-114 Rev. Russe Ent. 16 1916.—*S. danilovi* var. n. *djakonovi* Monts Nian-Shanj, ALPHÉRAKY p. 114 T.c.

Tachychlora flora sp. n. Brazil p. 350, fig., JONES Proc. Zool. Soc. London 1921.

Tephрина quadriplaga sp. n. Nigeria p. 217, ROTHSCHILD Novit. Zool. 28.

Terina tanyeces sp. n. Congo p. 152 pl. xviii f. 21, PROUT Bull. Hill Mus. 1.

Tetragonodes geminaria sp. n. Brazil p. 332, fig., JONES Proc. Zool. Soc. London 1921.

Trotoгония castraria sp. n. Brazil p. 333, fig., JONES Proc. Zool. Soc. London 1921.

Urania croesus, habits of imago, pp. 2-3, REUSS Ent. Rundsch. 38.

Xanthorhoe clandestina sp. n. New Zealand, *helias obscura* subsp. n., PHILPOTT p. 338 Tr. N. Z. Inst. 53.—*X. latissima* sp. n. C. Africa p. 140 pl. xviii f. 7, PROUT Bull. Hill Mus. 1.

Zamarada hero p. 154 pl. xviii f. 23, *enippe* p. 155 f. 24, Congo, *acosmeta* Tanganyika p. 157 fig., spp. n., PROUT Bull. Hill Mus. 1.

PYRALIDAE, THYRIDIDAE.

Description of caterpillar from Macquarie I. belonging to the sub-family *Crambinae*, p. 21, figs. 13-17, TILLYARD Sci. Rep. Austr. Ant. Exp. 1911-14 Ser. C 5 pt. 8 1920.

Epipaschiinae, Japanese, revision, pp. 265-272, pl. xxi, MARUMO J. Coll. Agric. Tokyo 6.

Acrobasis turatii sp. n. Croatia p. 129, SCHAWERDA D. ent. Zs. Iris 35.

Aganactesis gen. n. p. 65 *Pyralidae* (*Galleriinae*), *indecora* sp. n. Trinidad p. 65, DYAR Insecutor Ins. Menstr. 9.

Aglossa pinguinalis f. n. *lateritialis lividalis*, Cyrenaica, p. 228, TURATI, Atti. soc. ital. sci. nat. 60.

Ancylolomia affinis sp. n. Mesopotamia p. 175, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.

Anecephalesis catheretes in Florida, p. 143, DYAR Insecutor Ins. Menstr. 9.

Anerastia aurantiaca sp. n. Sahara p. 225, ROTHSCHILD Novit. Zool. 28.

Archigalleria buxtoni sp. n. Mesopotamia p. 174, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.

Artopsis nua a valid species, p. 144, DYAR Insecutor Ins. Menstr. 9.

Bostra marginalis sp. n. Mesopotamia p. 177, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.—*B. asbenicola* sp. n. Nigeria p. 226, ROTHSCHILD Novit. Zool. 28.

Brephia inconspicua, *gracilis* spp. n., Sahara p. 224, ROTHSCHILD Novit. Zool. 28.

Cataclysta leroii sp. n. Bahr el Abiad p. 107, STRAND Arch. Natg. 80 A. 10 1915.

Crambus sudanicola sp. n. Bahr el Abiad p. 112, STRAND Arch. Natg. 80 A. 10 1915.—*C. costalipartella* Montana, *tripsacas* Florida, spp. n., p. 66, DYAR Insecutor Ins. Menstr. 9.—*C. tutillus*, *avemellus*, spp. n., Canada, p. 160, McDUNNOUGH Canad. Ent. 53.—*C. culmellus* ab. n. *serenellus* p. 128, SCHAWERDA D. ent. Zs. Iris 35.

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Diatraea tripsacicola sp. n. Florida p. 193, DYAR Insecutor Ins. Menstr. 9.

Edia coolidgei sp. n. California p. 143, DYAR Insecutor Ins. Menstr. 9.

Ephestia kuehniella, biology, pp. 25–60, BURKHARDT Zs. angew. Ent. 6 1919.—*E. kuehniella*, wilt disease of, pp. 29–56, BERLINER Zs. angew. Ent. 2 1915.—*E. rectifasciella* Trti. synonymous with *disparalla* Rag., p. 323, TURATI Naturalista Sicil. 23.

Ematheudes punctella ab. n. *impunctella* p. 128, SCHAWERDA D. ent. Zs. Iris 35.

Eurhodope buxtoni sp. n. Mesopotamia p. 177, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.

Euzophera lanapalpis sp. n. Bahr el Abiad p. 110, STRAND Arch. Natg. 80 A 10 1915.

Evergestis rubidalbalis Trti. synonymous with *blandalis* Gn., and *segetalis* H. S. p. 324, TURATI Naturalista Sicil. 23.

Heterographis buxtoni sp. n. Baghdad p. 176, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.—*H. medioalba* p. 221, *aërensia*, *eximia*, *sahariensis*, p. 222, *cretaceogrisea* p. 223, spp. n., Nigeria, ROTHSCHILD Novit. Zool. 28.

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Laodamia fusca subsp. n. *postalbidior* Mesopotamia p. 176, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.

Lepidogma japonica n.n. for *basalis* South p. 266, pl. xxi f. 13, *kiiensis* sp. n. Japan p. 266, pl. xxi ff. 14–16, MARUMO J. Coll. Agric. Tokyo 6.

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Lorymana gen. n. *Pyrallidinae* p. 108, *noctuiiformis* sp. n. Bahr el Abiad p. 109, STRAND Arch. Natg. 80 A. 10 1915.

Loxostege damergouensis sp. n. Nigeria p. 228, ROTHSCHILD Novit. Zool. 28.

Macalla moncusalis p. 267, ff. 1, 2, *amica* ff 3–5, *inimica* p. 268, f. 7, pl. xxi, MARUMO J. Coll. Agric. Tokyo 6.

Marasmia hampsoni sp. n. Nigeria p. 227, ROTHSCHILD Novit. Zool. 28.

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Nymphula nymphaeata subsp. n. *latifasciata, nigrolinealis* subsp. n. *sordidior*, Persia p. 178, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.

Omiodes giffardi sp. n. Hawaii p. 469, SWEZEY Proc. Hawai. ent. Soc. 4.

Ommatopteryx hampsoni, asbenicola, spp. n. Asben p. 220, ROTHSCHILD Novit. Zool. 28.

Orthaga euadrusalis p. 271, pl. xxi f. 12, MARUMO J. Coll. Agric. Tokyo 6.

Perseistis n.n. for *Perseis* Rag. p. 106, STRAND Ent. Zs. 34.

Phlyctaenia tertialis, note on life-history, p. 160, ENGLEHARDT Insecutor Ins. Menstr. 9.

Pogononeura buchanani sp. n. Asben p. 224, ROTHSCHILD Novit. zool. 28.

Polygrammodes eximia sp. n. Brazil p. 355, fig., JONES Proc. Zool. Soc. London 1921.

Psorosana gen. n. *Phycitinae* p. 111, *testaceipennis* sp. n. Bahr el Zeraf p. 111, STRAND Arch. Natg. 80 A. 10 1915.

Pterothrix damergouensis sp. n. Nigeria p. 225, ROTHSCHILD Novit. Zool. 28.

Pyla sylphiella Washington, *feella* California, *blackmorella* British Columbia, spp. n., p. 68, DYAR Insecutor Ins. Menstr. 9.

Pyralis soudanensis sp. n. Africa p. 226, ROTHSCHILD Novit. Zool. 28.

Pyrausta liopasialis in Florida p. 143, DYAR Insecutor Ins. Menstr. 9.—*P. flavidalis* note on life-history p. 160, ENGLEHARDT Insecutor Ins. Menstr. 9.—*P. obumbratilis* synonymy, HEINRICH p. 57 Ent. News 32.

Rhodoneura oxydata sp. n. Brazil p. 354 fig., JONES Proc. Zool. Soc., London 1921.

Saluria lotelloides sp. n. Turkestan p. 124, FILIPJEV & DJAKONOV Rev. Russe Ent. 17.

Schoenobius uzorialis sp. n. Florida p. 143, DYAR Insecutor Ins. Menstr. 9.

Scoparia basalis subsp. n. *pacificalis* British Columbia p. 66, *commortalis* British Columbia, *extincta* Mexico p. 67 spp. n., DYAR Insecutor Ins. Menstr. 9.—*S. crypsinoa* = (*agana* M.), MEYRICK p. 334 Tr. N. Z. Inst. 33.—*S. ulmella*, valid, MEYRICK p. 51 Entomol. 54.—*S. manifestella* f. n. *fasciata* N. Italy p. 325 pl. iv figs. 33-34, f. n. *italica* Rome p. 326 pl. iv figs. 35-38, TURATI Naturalista Sicil. 23.

Stericta olivacea p. 270 pl. xxi f. 11, MARUMO J. Coll. Agric. Tokyo 6.

Suratha albostigmata sp. n. Asben p. 221, ROTHSCHILD Novit. Zool. 28.

Tegostoma comparalis sahariensis subsp. n. p. 229, ROTHSCHILD Novit. Zool. 28.

Tlithyia [recte *Ilithyia*] *buxtoni* sp. n. Persia p. 176, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.

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Zophodia suberastrrella sp. n. Persia p. 177, ROTHSCHILD J. Bombay Nat. Hist. Soc. 28.—*Z. straminea* sp. n. Bahrel Abiad p. 110, STRAND Arch. Natg. 80 A. 10 1915.

Xantippe uranides Florida, *beatifica* California, p. 144, DYAR Insecutor Ins. Menstr. 9.

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The *Pterophoridae* of America north of Mexico pp. 281-452, pls. xli-liv, BARNES & LINDSEY Contr. 4.

Adaina zephyria p. 366 pl. xii fig. 21, pl. xlix fig. 20, *buscki* p. 370 pl. xlii fig. 4, pl. i fig. 1, spp. n., N. America, BARNES & LINDSEY Contr. 4.—*A. propria* sp. n. Portug. E. Africa p. 50, MEYRICK Ann. Transv. Mus. 8.

Agdistis americana sp. n. California p. 447, pl. xlii fig. 20, pl. lii fig. 16, BARNES & LINDSEY Contr. 4.—*A. ingens* f. n. *flavissima* p. 87, *bennettii* var. n. *intermedia* p. 88, CARADJA D. ent. Zs. Iris 34 1920.

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Holcopogon Staud. supersedes *Epistomotis* Meyr., *H. rhyodes* Meyr. = *amphicentra* Meyr. *H. scaeocentra* sp. n. Brit. E. Africa p. 93, MEYRICK Ann. Transv. Mus. 8.

Homothamnis gen. n. *Blastobasidae* *litholeuca* sp. n. Port. E. Africa p. 117, MEYRICK Ann. Transv. Mus. 8.

Hyponomeuta malinella, damaging apple and pear trees, BENOIT pp. 59–60 Bull. Soc. Ardennes 9 1902.—*H. cuprea*, to *Orthenches*, MEYRICK p. 335 Tr. N. Z. Inst. 53.—*H. octocentra* sp. n. Rhodesia p. 117, MEYRICK Ann. Transv. Mus. 8.

Imma tormentata sp. n. Transvaal p. 110, MEYRICK Ann. Transv. Mus. 8.

Isocrita phlyctidopa sp. n. Portug. E. Africa p. 104, MEYRICK Ann. Transv. Mus. 8.

Isophrictis similicella, larval habits, BRAUN p. 8 Ent. News 32.

Isozyga gen. n. *Tineidae*, *phasganopa* sp. n. Port. E. Africa p. 130, MEYRICK Ann. Transv. Mus. 8.

Izatha acmonias sp. n. New Zealand p. 340, PHILPOTT Tr. N. Z. Inst. 53.

Lacistodes gen. n. *Gelechiadae*, *tauropis* sp. n. Africa p. 92, MEYRICK Ann. Transv. Mus. 8.

Lampronia quieta, *obscurumaculata*, p. 19, *variata* p. 20, spp. n., N. Amer., BRAUN Proc. Acad. Nat. Sci. Philadelphia 73.

Lasiomacra gen. n. *Oecophoridae*, *acharista* sp. n. Port. E. Africa p. 102, MEYRICK Ann. Transv. Mus. 8.

Latypica comprehensa, *phanlocentra* spp. n. Port. E. Africa p. 131, MEYRICK Ann. Transv. Mus. 8.

Lecithocera spiladius sp. n. Portug. E. Africa p. 88, MEYRICK Ann. Transv. Mus. 8.

Leuronoma eremopis p. 67, Transvaal, *nigridorsis*, p. 68, Rhodesia, spp. n., MEYRICK Ann. Transv. Mus. 8.

Levadia gen. n. near *Chilopsephalus*, *ribbeella* sp. n. Sierra Nevada p. 117, CARADJA D. ent. Zs. Iris 34 1920.

Limnecia conjuncta Portug. E. Africa, *explanata*, *sarcanthes* Rhodesia, spp. n., p. 95, MEYRICK Ann. Transv. Mus. 9.

Lita atriplicella var. n. *clarella* p. 100, *cephalella* p. 101 Uralsk, *conjugella* p. 103, spp. n., CARADJA D. ent. Zs. Iris 34 1920.—*L. brunhildae* sp. n. Croatia p. 134, SCHAWERDA D. ent. Zs. Iris 35.

Lithocolletis accrifotiella allies synonymy pp. 405–416, *platanoidella* sp. n. Paris p. 411, JOANNIS Ann. Soc. ent. France 89.—*L. danica* sp. n. Svendborg p. 158, CARADJA D. ent. Zs. Iris 34 1920.—*L. mines* p. 93, CALMBACH Ent. Zs. 34.

Lobesia permixtana, habits, JOANNIS Bull. Soc. ent. France 1921 pp. 252–256.

Lyonetia clerkella biology p. 97, CALMBACH Ent. Zs. 34.

Lytrophila phaulopa p. 132, *sporarcha* p. 132 spp. n. S. Africa, MEYRICK Ann. Transv. Mus. 8.

Macraeola crotalopis sp. n. Transvaal, p. 127, MEYRICK Ann. Transv. Mus. 8.

Macrobathra peraeola sp. n. Portug. E. Africa p. 98, MEYRICK Ann. Transv. Mus. 8.

Megacraspedus cuencellus Cuenca, *consortiella* Alai spp. n., *imparellus* var. n. *majorella* p. 117, CARADJA D. ent. Zs. Iris 34 1920.

Melasina paulusella sp. n. Jerusalem p. 166, *punctata* var. n. *kuldjaensis* p. 165, CARADJA D. ent. Zs. Iris 34 1920.—*M. delocrossa* p. 136, *furaformis* p. 135, *hippias* p. 134, *isopetra* p. 136, *linodyta* p. 135, *psammoticha* p. 135, *quassa* p. 136, *rudis* p. 135, *scriba* p. 136, *spilophanes* p. 137, spp. n. S. Africa, MEYRICK Ann. Transv. Mus. 8.

Melitonestis gen. n. p. 75 *Gelechiadae*, *centropyga* sp. n. Rhodesia p. 76, MEYRICK Ann. Transv. Mus. 8.

Mesophleps pudicellus var. n. *apicellus* p. 113, CARADJA D. ent. Zs. Iris 34 1920.

Metzneria hilarella sp. n. Cuenca p. 95, CARADJA D. ent. Zs. Iris 34 1920.

Mineola indignella, habits, WEISS p. 73 Canad. Ent. 53.

Monopis cecconii sp. n. Morocco p. 339, pl. iv fig. 52, TURATI Naturalista Sicil. 23.—*M. imella* var. n. *zelleri* p. 168, CARADJA D. ent. Zs. Iris 34 1920.

Myrmecozela affinitella ab. n. *extinctella* p. 172, CARADJA D. ent. Zs. Iris 34 1920.—*M. lyncodes* Port. E. Afr. *ordinata* Natal, spp. n. p. 126, MEYRICK Ann. Transv. Mus. 8.

Mystax trapezoidella, *lacrimella*, p. 138 Kasakewitsch, *sikkimella* p. 139, Darjeeling, spp. n., CARADJA D. ent. Zs. Iris 34 1920.

Narycia copiosa p. 133, *prothyrodes* p. 134, spp. n. Rhodesia, MEYRICK Ann. Transv. Mus. 8.

Nemophora submetallica sp. n. Kasakewitsch p. 173, CARADJA D. ent. Zs. Iris 34 1920.

Nepticula caliginosa, *macrochaeta*, *protosema*, *xuthomutra*, spp. n. S. Africa p. 140, MEYRICK Ann. Transv. Mus. 8.—*N. progenopsis* sp. n. New Zealand p. 336, MEYRICK Tr. N. Z. Inst. 53.—*N. of New Zealand*, early stages, pp. 197–219, 3 pls., *fulva* sp. n. p. 215, WATT Tr. N. Z. Inst. 53.

Nothris chinganella var. n. *fuscanella* Amasia p. 115, CARADJA D. ent. Zs. Iris 34 1920.

Ocyphron gen. n. *Oecophoridae*, *oxyphylla* Rhodesia sp. n. p. 103, MEYRICK Ann. Transv. Mus. 8.

Odites consignata p. 107, *emensa* p. 106, *fessa* p. 107, *incusata* p. 107, spp. n. S. Africa, MEYRICK Ann. Transv. Mus. 8.

Oecophora sulphurella var. n. *aucta* Sardinia p. 123, KRAUSSE Arch. Natg. 81 A 2 1915.

Oegoconia cyrota sp. n. Cape p. 94, MEYRICK Ann. Transv. Mus. 8.

Oinophila syntricha Meyr. recorded from Durban, MEYRICK p. 125 Ann. Transv. Mus. 8.—*O. amphicrossa* sp. n. Transvaal p. 124, MEYRICK Ann. Transv. Mus. 8.

Onebala binefrata sp. n. Transvaal p. 90, MEYRICK Ann. Transv. Mus. 8.

Opogona amphichorda sp. n. Port E. Africa p. 125, MEYRICK Ann. Transv. Mus. 8.

Opostega diplardis p. 123, *orophocantha* p. 124, spp. n., S. Africa, MEYRICK Ann. Transv. Mus. 8.—*O. callosa* p. 532, *serpentina* p. 533, *filiforma*, *peleana* p. 534, spp. n., Hawaiian islds., SWEZEY P. Hawaii. ent. Soc. 4.

Orygocera recordata sp. n. Portug. E. Africa p. 100, MEYRICK Ann. Transv. Mus. 8.

Pachnistis autophanta, *consors*, *microphanta*, spp. n. S. Africa p. 89, MEYRICK Ann. Transv. Mus. 8.

Pallodora striatella ab. n. *substriatella* p. 113, CARADJA D. ent. Zs. Iris 34 1920.

Parectopa cardamitis sp. n. Transvaal p. 122, MEYRICK Ann. Transv. Mus. 8.

Phthinostoma apathetica, *pachyzona*, spp. n. Transvaal p. 114, MEYRICK Ann. Transv. Mus. 8.

Phthoracma gen. n. *Gelechiadae*, *blanda* sp. n. Transvaal p. 87, MEYRICK Ann. Transv. Mus. 8.

Phthorimaca colasta p. 74, *dispensata* p. 73, *fanatica* p. 73, *intestinalis* p. 74, *nomias* p. 74, *sibila* p. 73, *vicaria* p. 74, spp. n., S. Africa, MEYRICK Ann. Transv. Mus. 8.

Phycodes mochlophanes sp. n. Port. E. Africa p. 110, MEYRICK Ann. Transv. Mus. 8.

Phyllocoustis pharetrucha sp. n. Natal p. 124, MEYRICK Ann. Transv. Mus. 8.

Picrospora protocentra sp. n. p. 132, MEYRICK Ann. Transv. Mus. 8.

Pithanurga gen. n. *Gelechiadae*, *chariphila* sp. n. Transvaal p. 68, MEYRICK Ann. Transv. Mus. 8.

Platybathra picropa sp. n. Rhodesia p. 98, MEYRICK Ann. Transv. Mus. 8.

Plectrocosma gen. n. *Gelechiadae*, *centrophora* sp. n. Transvaal p. 75, MEYRICK Ann. Transv. Mus. 8.

Plesioistica gen. n. *Oecophoridae*, *galactaea*, *acida*, *endocentra*, *practicodes*, spp. n. p. 100, MEYRICK Ann. Transv. Mus. 8.

Pleurota armeniella sp. n. Kasikoparan p. 123, *honorella* ab. n. *obsoletella* p. 124, CARADJA D. ent. Zs. Iris 34 1920.—*P. rostrella* f. n. *marocana* Morocco p. 333, TURATI Naturalista Sicil. 23.

Plutella senilella var. n. *nigra* p. 93, CARADJA D. ent. Zs. Iris 34 1920.

Proceleustis plumbaria sp. n. Rhodesia p. 105, MEYRICK Ann. Transv. Mus. 8.

Procometis ochricilia sp. n. Transvaal p. 106, MEYRICK Ann. Transv. Mus. 8.

Promalactis geometrica sp. n. Rhodesia p. 98, MEYRICK Ann. Transv. Mus. 8.

Psacaphora deceptella, *sexstrigella* spp. n. N. Amer. p. 5, BRAUN Proc. Acad. Nat. Sci. Philadelphia 73.

Psychidae, notes on larvae pp. 79–81, VAN DEN PLAS Sudan Notes and Rec 3.

Pycnostola auturga sp. n. Natal p. 65, MEYRICK Ann. Transv. Mus. 8.

Recurvaria ceanothiella sp. n. California p. 10, BRAUN Ent. News 32.

Sabatinca ianthina sp. n. New Zealand p. 341, PHILPOTT Tr. N. Z. Inst. 53.

Scardia ussuriensis sp. n. Kasakewitsch p. 167, CARADJA D. ent. Zs. Iris 34 1920.

Sciopetris melitensis sp. n. Malta p. 96, REBEL D. ent. Zs. Iris 32 1919.

Scythris ridiculella p. 143 Granada, *taurella* Zeitun, *canetella* Pyrenees p. 144, *tenietella* p. 145 Tenied el Haad, *hyalinella* p. 146 Kasikoparan spp. n. *grandipennis* ab. n. *porrectella* p. 143, *unipunctella* ab. n. *mediella* p. 144, *flabella* ab. n. *aurella*, *eucharis* ab. n. *lacteella* p. 146, CARADJA D. ent. Zs. Iris 34 1920.—*S. calcitua* p. 116, *clemens* p. 115, *concurrrens*, *distactica* p. 115, *eloquens* p. 115, *halmyrodes* p. 116, *homoxantha* p. 116, *ilyopa* p. 116, *mesoplecta* p. 116, *patiens* p. 116, spp. n. S. Africa, MEYRICK Ann. Transv. Mus. 8.

Simathis stereocrossa p. 110, *irridens*, *dryodora* Port. E. Africa, *plectodes* Natal p. 111, spp. n., MEYRICK Ann. Transvaal Mus. 8.

Solenobia desertella p. 104 Orenburg, *alpicolella* p. 106 Austria, *siculella* p. 108 Sicily, *adriatica* p. 110 Croatia, *triglavensis* p. 111 Triglav, spp. n., REBEL D. ent. Zs. Iris 32 1919.

Sophronia alaicella sp. n. Alai p. 116, CARADJA D. ent. Zs. Iris 34 1920.

Stigmatophora cinereocapitella sp. n. Uralisk p. 149, CARADJA D. ent. Zs. Iris 34 1920.

Stathmopoda phlegyra = (*fusilis* M.), MEYRICK p. 335 Tr. N. Z. Inst. 53.—*S. aegotricha*, *hemiplecta*, *revincta*, *teleozona*, spp. n. S. Africa p. 109, MEYRICK Ann. Transv. Mus. 8.

Steganosticha gen. n. *Hyponotidae*, *remigera* sp. n. Natal p. 118, MEYRICK Ann. Transv. Mus. 8.

Stemmaphora serratella habits, JOANNIS pp. 265–267 Bull. Soc. ent. France 1921; POUTIERS T.c. pp. 269–271.

Stenolechia sagitella sp. n. Marasch p. 110, CARADJA D. ent. Zs. Iris 34 1920.

Stomopteryx alaopis p. 76, *catharcha* p. 76, *biangulata* p. 77, *hyperythra* p. 76, spp. n. Africa, MEYRICK Ann. Transv. Mus. 8.

Symmoca contristella Ak Chehir, *turana* Margelan p. 119, *minimella* Symonowsk p. 120, spp. n., CARADJA D. ent. Zs. Iris 34 1920.

Syringopais gen. n. for *Scythris temperatella* Led. p. 129, HERING D. ent. Zs. Iris 32 1919.

Tachyptilia lugens Kasakewitsch, *suberiella* France p. 105, *panormitella* Brussa p. 106, spp. n., CARADJA D. ent. Zs. Iris 34 1920.

Talaeporia discassa, *sciacta*, spp. n. S. Africa p. 133, MEYRICK Ann. Transv. Mus. 8.—*T. cawthronella* sp. n. New Zealand p. 341, PHILPOTT Tr. N. Z. Inst. 53.—*T. autumnella* sp. n. Istria p. 98, REBEL D. ent. Zs. Iris 32 1919.

Teleia triparella var. n. *sultanella*, *myricariella* var. n. *arenicolella* p. 104, CARADJA D. ent. Zs. Iris 34 1920.

Telphusa agrifolia sp. n. California p. 9, BRAUN Ent. News 32.—*T. praefixa* sp. n. N. Amer. p. 6, BRAUN Proc. Acad. Nat. Sci. Philadelphia 73.—*T. accensa* p. 68, *commaculata* p. 69, *emphanista* p. 70, *objecta* p. 70, *relecta* p. 70, *syndelta* p. 69, spp. n. S. Africa, MEYRICK Ann. Transv. Mus. 8.

Theatrochora gen. n. *Tineidae*, *cosmophanes* sp. n. Natal p. 128, MEYRICK Ann. Transv. Mus. 8.

Thiotrichia pallatobola sp. n. Transvaal p. 75, MEYRICK Ann. Transv. Mus. 8.

Thrombigenes gen. n. *Tineidae*, *selmatarcha* sp. n. Cape p. 137, MEYRICK Ann. Transv. Mus. 8.

Tinagma gigantea, *pulverilinea*, spp. n. N. Amer. p. 17, BRAUN Proc. Acad. Nat. Sci. Philadelphia 73.

Tinea lapella biological note p. 48, AICHELE Soc. Entomol. 36.—*T. uraliskella* sp. n. Uralisk p. 169, *arcella* var. n. *nevadella* p. 168, CARADJA D. ent. Zs. Iris 34 1920.—*T. fagicola* sp. n. New Zealand p. 336, MEYRICK Tr. N. Z. Inst. 53.—*T. audens* p. 129, *fulvicoma* p. 129, *leucomima* p. 129, *lichmodes* p. 130, *lissochlora* p. 130, *pentametra* p. 128, *sanctifica* p. 129, spp. n. S. Africa, MEYRICK Ann. Transv. Mus. 8.

Tineola quadrupella Gafsa, *indiella* Darjeeling, spp. n. p. 171, CARADJA D. ent. Zs. Iris 34 1920.—*T. biselliella* biology pp. 164–169, NAGEL Zs. angew. Ent. 7 1921.

Tochares gen. n. *Gelechiadae*, *festa* sp. n. Transvaal p. 81, MEYRICK Ann. Transv. Mus. 8.

Trachydora scandalotis sp. n. Transvaal p. 97, MEYRICK Ann. Transv. Mus. 8.

Trichotaphe condylodes p. 85, *hercogramma* p. 86, *homaloxista* p. 86, *monococca* p. 85, *ochrozesta* p. 86, *pleuropis* p. 86, *syngapta* p. 85, spp. n. S. Africa, MEYRICK Ann. Transv. Mus. 8.—*T. erixantha* transferred to *Dichomeris*, MEYRICK p. 83 Ann. Transvaal Mus. 8.

Trifurcula rufifrontella p. 161 Bozen, *viridissimella* p. 162 Vienna, spp. n., CARADJA D. ent. Zs. Iris 34 1920.

Tubuliferola not a synonym p. 3, STRAND Int. ent. Zs. 15.

Xylesthia trachyphaea sp. n. Cape p. 131, MEYRICK Ann. Transv. Mus. 8.

Xystophora coeruleopictella sp. n. Kasakewitsch p. 106, CARADJA D. ent. Zs. Iris. 34 1920.

Ypsolophus sublotellus sp. n. Murcia p. 114, CARADJA D. ent. Zs. Iris 34 1920.

TRICHOPTERA.

Trichoptera, Literature 1910-14 ULMER, Zs. wiss. Insektenbiol. **16** pp. 159-160 198-200 238-240.

The *Trichoptera* of Bavaria, ULMER pp. 183-186 206-218 T.c.

Catalogue Argentine *Trichoptera* pp. 389-399, JÖRGANSEN Prim. Réunion. Nac. Soc. Arg. Cienc. Nat. Buenos Aires **1919**.

The biology of North-American *Trichoptera* larvae, LLOYD Bull. **21** Lloyd libr. Cincinnati, 124 pp. 200 figs.; noticed by NEEDHAM Ent. News **32** p. 150.

†*Beraeodes anglica* p. 479 f. 48, *vectensis* f. 49, spp. n., Oligocene Isle of Wight p. 479, COCKERELL Ann. Nat. Hist. **7**.

Brethesella gen. n. near *Leptocella* p. 70, *decorata* sp. n. Argentina p. 71 fig NAVÁS An. Soc. Cient. Argent. **90** 1920.

Chiasmodes gen. n. near *Synoesdropsis* p. 40, *ecliptica* (genotype) p. 41 fig., *manicata* p. 42, fig., spp. n., Argentina, NAVÁS T.c.

Chimarra armata sp. n. Argentina, NAVÁS p. 38 fig. T.c.

Hydropsychodes masia sp. n. Philippines, NAVÁS p. 8 fig. Mem. Acc. Nuovi Lincei **5** 1920.

Leptocella nivea Bolivia p. 39, fig., *brethesi* Uruguay pp. 40-66, *bruchi* Argentina p. 66, fig., *mixta* Argentina p. 67, fig., *nigricapilla* Paraguay p. 68, fig. *spgazzinia* Paraguay p. 69, fig., spp. n. NAVÁS An. Soc. Cient. Argent. **90** 1920.

Leptonema columbianum, male described, NAVÁS p. 64 T.c.

Notanotolica manilana sp. n. Philippines, NAVÁS p. 8 Mem. Acc. Nuovi Lincei **5** 1920.

Nyctiophylax muhnianus sp. n. Argentina, NAVÁS p. 18 fig. T.c.

Oecetis muhnia sp. n. Argentina, NAVÁS p. 28 fig. T.c.

Phryganea, keys to larvae of Belgian spp., and figs., LESTAGE pp. 60-63 Bull. soc. ent. Belg. **3**.

Polycentropus lepidius sp. n. China, NAVÁS p. 10 Mem. Soc. Nuovi Lincei **5** 1920.

Rhyacophylax mendocensis p. 43, *nivosus* p. 65, spp. n. Argentina, NAVÁS An. Soc. Cient. Argent. **90** 1920.

Synagapetus ater Klap. metamorphosis, pp. 180-182 fig., FISCHER Jahresb. Prov. Ver. Wiss. Münster **44**.

Synoesdropsis vitrea, male described, NAVÁS p. 65 An. Soc. Cient. Argent. **90** 1920.

Zelandopsycha gen. n. p. 348 near *Oeconesus*, *ingens* sp. n. New Zealand p. 349 figs., TILLYARD Tr. N. Z. Inst. **53**.

NEUROPTERA.

Monographic revision of the *Mecoptera*, EBBEN-PETERSEN Coll. Selys. Longchamps **5** (2).

The *Chrysopidae* of Europe, bibliography, descriptions, etc., NAVÁS Arxivs Inst. Cien. Barcelona **3** no. 2 1915.—*Chrysopidae* biology pp. 27-35, SMITH Ann Ent. Soc. Amer. **14**.

Neuroptera of Barkuda island pp. 397, 398, DOVER Rec. Ind. Mus. **22**.

Surgonopods in *Mecoptera* and *Neuroptera*, CRAMPTON p. 151 Psyche **28**.

List Neuroptera N. Africa pp. 11-14, NAVÁS Bull. soc. hist. nat. Algiers **12** 1921.

Acanthaclisis laevis sp. n. Somaliland p. 22 fig. 20, NAVÁS Mem. Acc. Nuovi Lincei **33** 1915.

Ameromyia baronei sp. n. Argentina NAVÁS p. 49 fig., Estudios Buenos Aires **1921**.

Ancylopteryx pallida re-described, NAVÁS p. 229 Ann. Soc. Sci. Bruxelles **40**.

Ascalaphus guttulatus a var. of *libelluloides* p. 32, *italicus* var. n. *costana* Italy p. 23, *ustulatus* a var. of *hispanicus* p. 23, NAVÁS Mem. Acc. Nuovi Lincei **5** 1920.

Austroleon semitinctus Bolivia p. 47 fig., *sectorius* Argentina p. 58, spp. n., NAVÁS An. Soc. Cient. Argent. 90 1920.

Berothini trib. n. of *Berothidae* (type *Berotha*), NAVÁS p. 230 Ann. Soc. Sci. Bruxelles 40.

Boreus, the food of, WITHYCOMBE p. 234 Naturalist 1921.

Boriomyia persica sp. n. Enzeli p. 221 fig., MORTON Ent. Mag. 57.

Chrysopa almerai Spain p. 15, *lagunensis* Canary Is. p. 16, spp. n., *lanata* var. n. *unita* Argentina p. 24, NAVÁS Mem. Acc. Nuovi Lincei 5 1920.—*C. annularis* p. 127 fig. 2 Juan Fernandez, *puerula* p. 127 Easter Island, spp. n., NAVÁS The nat. hist. of Juan Fernandez 3 Pt. 1.—*C. canaria* Canaries p. 17, *marchionissa* Lourenzo Marques p. 29 fig. 23, spp. n., NAVÁS Mem. Acc. Nuovi Lincei 33 1915.—*C. lanata* var. n. *basalis* Argentina p. 59, *paraguarua* sp. n. Paraguay p. 59, NAVÁS An. Soc. Cient. Argent. 90 1920.—*C. tigridis* sp. n. Mesopotamia p. 220, MORTON Ent. Mag. 57.—*C. viridans*, larva, fig., LACROIX p. 182 Bull. Soc. ent. France 1921.—*C. vulgaris* var. n. *aragonica* Spain p. 27 fig. 3, *cingulata* France p. 28; *viridana* var. n. *ad-equata* Spain p. 36, *montana* (habitat not stated) p. 36 fig. 4; *granadensis* var. n. *pyrenaica* France p. 41; *flavifrons* var. n. *carrobei* Spain p. 49 fig. 5, *exornata* Spain p. 50 fig. 6, *opulenta* Spain p. 50 pl. iii fig. 8; *alarconi* sp. n. Spain p. 53 pl. iii fig. 11; *prasina* var. n. *coronata* Spain p. 60 pl. i fig. 12, *salvadori* Spain p. 61 fig. 7, *gerundensis* Spain p. 63 pl. iii fig. 13; *septempunctata* var. n. *puncticollis* Spain p. 71 fig. 9; *formosa* var. n. *bufona* Spain p. 73, *gundisalvi* Spain p. 73; *merembergi* var. n. *clara* Spain p. 77; *regalis* sp. n. Spain p. 79 pl. i fig. 21, NAVÁS Arxivs Inst. Cien. Barcelona 3 no. 2 1915.

Cintameva principissa sp. n. Lourenzo Marques p. 27 fig. 22, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Clathroneuria lizeri sp. n. Argentina, NAVÁS p. 48 fig. An. Soc. Cient. Argent. 90 1920.

Croceleon latens distinct from *Neuroleon alcidice*, NAVÁS p. 229, Ann. Soc. Sci. Bruxelles 40.

(N-17041 j) q

Cueta cridai Belgian Congo p. 25, *heynei* Delagoa Bay p. 26, spp. n., NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Disparomitus citernii sp. n. Somaliland p. 19 fig. 17, NAVÁS T.c.

Feinerus umbratus, additional characters NAVÁS p. 228 Ann. Soc. Sci., Bruxelles 40.

Fillus brethesi, female described, NAVÁS p. 57 An. Soc. Cient. Argent. 90 1920.

Formicaleo gafsanus sp. n. Tunisia p. 13, NAVÁS Bull. Soc. hist. nat. Alger. 12 1921.—*F. mesmini* sp. n. Caucasus NAVÁS p. 227 Ann. Soc. Sci. Bruxelles 40.—*F. turbidus* sp. n. Congo p. 11 fig. 12, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Furgus gen. n. (type *Nobra riparius*), NAVÁS p. 51 Estudios Buenos Aires 1921.

Gepus buxtoni sp. n. Basra p. 217 fig., MORTON Ent. Mag. 47.

Glenurus brasiliensis sp. n. Brazil NAVÁS p. 416 fig. Rev. Mus. São Paulo 12 1920.

Goliva gen. n. near *Nadiva* p. 49, *deletangi* sp. n. Bolivia p. 50 fig., NAVÁS An. Soc. Cient. Argent. 90 1920.

Helicomitus hyalinus sp. n. Algeria p. 11, NAVÁS Bull. Soc. hist. nat. Alger. 12 1921.

Hemerobius hageni var. n. *distincta* Argentina p. 61, NAVÁS An. Soc. Cient. Argent. 90 1920.—*H. poppii* sp. n. Siberia p. 40, ESBEN-PETERSEN Notulae Ent. 1.—*H. skottsbergi* p. 125 fig., *sjöstedti* p. 126 spp. n. Juan Fernandez, NAVÁS Nat. Hist. Juan Fernandez 3 Pt. 1.

Lertha rifensis sp. n. Morocco p. 33 fig. 26, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Macronemurus pupus sp. n. Algeria, NAVÁS p. 12, Mem. Acc. Nuovi Lincei 5 1920.

Mantispa decorata, figure of wings, NAVÁS p. 55, Estudios Buenos Aires 1921.—†*M. relicta* sp. n. Oligocene Isle of Wight p. 477 f. 46, COCKERELL Ann. Nat. Hist. 7.

Mantisquilla trichostigma sp. n. Argentina, NAVÁS p. 51 fig. Estudios, Buenos Aires 1921.

Maracanda amoena MacLachl. redescription, p. 39, ESBEN-PETERSEN Notulae Ent. 1.

Merope tuber, genitalia pp. 231-232 1 plate, MUIR Trans. ent. soc. London 1921.

Myrmecaelurus radiatus sp. n. Africa (Assab) p. 27, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.—*M.* sp. Mesopotamia, MORTON p. 217 Ent. Mag. 57.

Myrmeleon europaeus, biology, pp. 125-128, KRAUSSE Arch. Natg. A 81 H. 7 1915.

Naizemini trib. n. of *Berothidae* (type *Naizema*), NAVÁS p. 231 Ann. Soc. Sci. Bruxelles 40.

Necyla finoti sp. n. Madagascar p. 18 fig. 16, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Nelebrachys gen. n. p. 38 *Myrmeleonidae*, *aequatus* sp. n. Africa p. 38, fig. 28, NAVÁS. T.c.

Nelees distinct from *Hagenomyia*, NAVÁS p. 226, Ann. Soc. Sci., Bruxelles 40.—*N. carbonarius* sp. n. Congo p. 16 fig. 15, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.—*N. mesopotamiae* sp. n. p. 214, MORTON Ent. Mag. 57.

Nemeura gen. n. p. 36 *Nemopteridae*, *longstaffi* sp. n. Zambesi p. 36, fig. 27, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Nemeva gen. n. p. 35 *Nemopteridae*, for *N. africana*, NAVÁS. T.c.

Nemia gen. n. p. 36 *Nemopteridae*, for *N. costalis*, NAVÁS. T.c.

Neoclisia adnexa sp. n. Egypt p. 23 fig. 21, NAVÁS. T.c.

Neuroleon deceptor Mogador p. 14, fig. 13, *gratus* Africa or. p. 15, fig. 14, spp. n., NAVÁS. T.c.

Niremberge miranda sp. n. Argentina, NAVÁS p. 62, fig. An. Soc. Cient. Argent. 90 1920.

Nobra martinsi, male described, NAVÁS p. 38, fig. T.c.

Nosybus nobilis Navas, redescription, p. 41, ESBEN-PETERSEN Notulae Ent. 1.

Noues gen. n. of *Myrmeleonidae* p. 13, *zonatus* sp. n. Annam p. 14, NAVÁS Mem. Acc. Nuovi Lincei 5 1920.

Palpares campanai Angola p. 9, *dela-fosse* Ivory Coast p. 10, fig. 11, *bayoni* Uganda p. 20, fig. 18 spp. n., NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Palparellus ruspolii sp. n. Africa p. 21 fig. 19, NAVÁS. T.c.

Panorpa communis var. n. *exstincta*, LUCAS p. 78 Entomol. 54.—*P. communis* varr. figs., LACROIX pp. 16-20 Bull. Soc. ent. France 1921.—†*P. veterna* sp. n. Oligocene Isle of Wight p. 478 f. 47, COCKERELL Ann. Nat. Hist. 7.

Peyerimhoffina, gen. n. p. 83, *pudica* sp. n. Constantine p. 84 fig. 1, LACROIX Bull. soc. hist. nat. Alger. 11 1920.

Polancus solers Abyssinia p. 12, *alienus* N. Nigeria p. 13, spp. n., NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Protohemes vitalisi sp. n. Tonkin, NAVÁS p. 17, Mem. Acc. Nuovi Lincei 5 1920.

Rameta gen. n. near *Nothochrysa* p. 60, *sanguinea* sp. n. Argentina p. 61, fig., NAVÁS An. Soc. Cient. Argent. 90 1920.

Sogra distincta var. n. *obliqua* Cape Colony, NAVÁS p. 225, Ann. Soc. Sci., Bruxelles 40.—*S. mordax* different from *distincta*, NAVÁS p. 225. T.c.

Spermophorellini trib. n. of *Berothidae* (type *Spermophorella*), NAVÁS p. 231. T.c.

Theleproctophylla gelini sp. n. Morocco, NAVÁS p. 21, figs. Mem. Acc. Nuovi Lincei 5 1920.

Thaumatoleon gen. n. of *Myrmeleonidae*, *splendidus* sp. n. Japan, ESBEN-PETERSEN p. 127 fig. Videns Medd. nat. For. 72.

Ulolodes brachycerca, female described, NAVÁS p. 37 fig. An. Soc. Cient. Argent. 90 1920.

Vella puerpera, male described, NAVÁS p. 46. T.c.

DIPTERA.

Diptera larvae feeding on molluscs, KEILIN pp. 181-183 Parasitology 13.

List of *Diptera* parasitic on sawflies, GREENE pp. 43-45 P. ent. Soc. Washington 23.

Nematocera from Arctic Siberia, LUNDSTRÖM pp. 1-33 pls. i, ii. Mém. Ac. Sci. Petrograd ser. 8 Phys-Math. 29 No. 8 1918.

Dipteren als hygienische und wirtschaftliche Schädlinge, LEICHMANN pp. 105-121 Verh. Deutsch. Gesell. angew. Ent. 1919.

Resting attitudes, *Nematocera*, EDWARDS pp. 22-26 Ent. Mag. 57.

Dipterous larvae (? *Ephydriidae*) in the branchial chambers of land-crabs, Christmas isld., etc., KEILIN pp. 601-608 Ann. Nat. Hist. 8.

Diptera parasiting snails, SÉGUY pp. 238 and 239 Bull. Soc. ent. France 1921.

Leaf-mining *Diptera* pp. 123-147, HERING D. ent. Zs. 1921.

Diptera and fungi, WEISS & WEST, Proc. Biol. Soc. Washington 34 p. 169.

Diptera and Fungi, WEISS Proc. Biol. Soc. Washington 34 pp. 85-88.

Morphology of Mouth parts of *Diptera schizophera*, No. 3, FREY Act. Soc. Fauna et Fl. Fenn. 48 245 pp. 10 plates.

Cell-elements of fat body in *Diptera* p. 193-200, HERMANN Zool. Anz. 52.

Reduction and disappearance of wings in *Diptera*, BEZZI pp. 85-132, 133-182, figs. 1-11 Natura 7 1916.

Eine neue morphogenetische Deutung der Dipteren thorax: Der Dipterenflügel nicht Meso-, sondern metathoracal? pp. 529-546, FEUERBORN Zool. Jahrb. Jena Abt. f. Anat. 42 1921.

Dipterous insects of Barkuda island pp. 393-396, DOVER Rec. Ind. Mus. 22.

On myiasis-producing *Diptera*, PATTON pp. 239-261 Bull. ent. Res. 12 2 pls.

Diptera of the Government of Petrograd, STACKELBERG pp. 299-307 Rev. Russe Ent. 16 1917.

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CECIDOMYIIDAE.

New galls of *Cecidomyiidae*, WELLS pp. 35-45, pl., Psyche 28.

Cecidomyiidae, Czechoslovakian, pp. 45-59, BAUDYS & WIMMER Časopis 17.

Alexomyia gen. n. near *Liebeliola*, *ciliata* sp. n. Brazil, FELT p. 141 Ent. News 32.

Arthrocnodax jaapi sp. n. Germany p. 42, RÜBSAAMEN D. ent. Zs. 1921.

Contarinia andropoginis pl. i p. 22, BALLARD Rep. ent. meeting Pusa 4.—*C. polygonati* p. 43, *fagi* p. 44, *dipsacearum* p. 45, *tanacetii* p. 47, spp. n. Germany, RÜBSAAMEN D. ent. Zs. 1921.

Dasyneura polygoni sp. n. Germany p. 48, RÜBSAAMEN D. ent. Zs. 1921.

Helicomyia deletrix sp. n. Germany p. 36, RÜBSAAMEN D. ent. Zs. 1921.

Jaapiella cucubali p. 49, *hedickei* p. 50, spp. n. Germany, RÜBSAAMEN D. ent. Zs. 1921.

Johnsonomyia alexanderi sp. n. Cameroons p. 96, FELT Canad. Ent. 53.

Lasioptera apocyni sp. n. U.S., FELT p. 149, Canad. Ent. 53.

Lestodiplosis trivittata sp. n. Germany p. 41, RÜBSAAMEN D. ent. Zs. 1921.

Macrolabis brunellae sp. n. Germany p. 50, RÜBSAAMEN D. ent. Zs. 1921.

Massalongia aceris sp. n. Germany p. 40, RÜBSAAMEN D. ent. Zs. 1921.

Monarthripalpus buxi, life-history, HAMILTON p. 359-365 pl. iv J. econ. Ent. 14.

Orseoliella orientalis sp. n. Java p. 90, FELT Treubia Buitenzorg 2.

Paralldiplosis javanica p. 91, *pas-pali* p. 92, spp. n. Java, FELT Treubia, Buitenzorg 2.

Phytophaga floridensis sp. n. U.S. p. 143, FELT Ent. News 32.

Porricondyla pennulae sp. n. Florida p. 142, FELT Ent. News 32.

Rhabdophaga oculiperda sp. n. Germany p. 38, RÜBSAAMEN D. ent. Zg. 1921.

Rhopalomyia sabinal p. 115, *weldi* p. 116, **spp. n.** United States, FELT J. New York Ent. Soc. 29.

Thorodiplosis **gen. n.** near *Prodiptosis*, *impatiens* **sp. n.** Java p. 89, FELT Treubia Buitenzorg 2.

Trotteria inquilina **sp. n.** Germany p. 51, RÜBSAAMEN D. ent. Zs. 1921.

Walshomyia insignis **sp. n.** Texas p. 117, FELT J. New York Ent. Soc. 29.

Winnertzia fungicola **sp. n.** New Jersey p. 118, FELT J. New York Ent. Soc. 29.

MYCETOPHILIDAE.

†Monograph of *Mycetophilidae* of Amber pp. 477–493, MEUNIER Zs. D. Geol. Ges. 68 1916.

The *Mycetophilidae* of Moravia pt. III, LANDROCK pp. 14–93 figs. 1–39 Zs. Mähr. Ld. Mus. 14 1914.

The *Mycetophilidae* of Moravia pt. IV, LANDROCK pp. 11–75 figs. 1–11, Zs. Mähr. Ld. Mus. 17 1919.

New Moravian species of *Docosia*, LANDROCK pp. 59–66, figs. 1–13, Zs. Mähr. Ld. Mus. 15 1916.

†*Acnemia simplex* **sp. n.** Oligocene Isle of Wight p. 463 f. 19, COCKERELL Ann. Nat. Hist. 7.

Allodia lundstroemi, *anglofennica* p. 122, *truncata* p. 123, **spp. n.**, Britain, EDWARDS Scott. Nat. 1921.—†*A. eridana* **sp. n.** from amber p. 483 figs., MEUNIER Zs. D. Geol. Ges. 68 1916.

Anatella setigera, *unguigera*, **spp. n.**, Scotland p. 122, EDWARDS Scott. Nat. 1921.

Arctoneura (Casa) wakefieldi **sp. n.** New Zealand p. 435, EDWARDS Ann. Nat. Hist. 7.

Boletina birulai p. 3 pl. i fig. 3, *intermedia* p. 4 pl. i figs. 4 and 5, *polaris* p. 4 pl. i fig. 6, **spp. n.**, Arctic Siberia, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918.—†*B. unicolorata* **sp. n.** from amber p. 486 figs., MEUNIER Zs. D. Geol. Ges. 68 1916.

Centrocnemis fuscineris p. 433, *aculeatus* p. 434, **spp. n.**, Tasmania, EDWARDS Ann. Nat. Hist. 7.

Dilomyinae, taxonomy, EDWARDS p. 431–436 Ann. Nat. Hist. 7.

Docosia pseudovalida p. 63, *setosa* p. 63, *moravica* p. 64, **spp. n.**, Moravia, LANDROCK Zs. Mähr. Ld. Mus. 15 1916.—†*D. unicolorata* p. 479, *archaica* p. 480, *subvaria* p. 481, from amber, figs., MEUNIER Zs. D. Geol. Ges. 68 1916.

Exechia argenteofasciata p. 382, *cristata* p. 383, *ampullata* p. 384, *zeylanica* p. 385 **spp. n.**, Ceylon, SENIOR-WHITE Spolia Zeylan. 11.—†*E. inflata* **sp. n.** from amber p. 482 figs. 11–14, MEUNIER Zs. D. Geol. Ges. 68 1916.

†*Lasiosoma minutissima* **sp. n.** Aquitanian, Siebengebirge p. 217 figs., MEUNIER Zs. D. Geol. Ges. 67 1915.

†*Mycomya oblita* **sp. n.** Oligocene Isle of Wight p. 463 f. 18, COCKERELL Ann. Nat. Hist. 7.

†*Palaeoempalia interrupta* **sp. n.** from amber p. 478 figs. 1–3, MEUNIER Zs. D. Geol. Ges. 68 1916.

†*Phronia? virgata* **sp. n.** oligocene Isle of Wight p. 465 f. 24, COCKERELL Ann. Nat. Hist. 7.

Platyura insolita Walk., to *Centrocnemis*, EDWARDS p. 435 Ann. Nat. Hist. 7.—*P. talaroceroides* **sp. n.** Ceylon p. 381, SENIOR-WHITE Spolia Zeylan. 11.—†*P. obliqua* **sp. n.** oligocene Isle of Wight p. 463 f. 17, COCKERELL Ann. Nat. Hist. 7.

Polyxena moravica **sp. n.** Moravia, LANDROCK p. 68, Zs. Mähr. Ld. Mus. 14 1914.

†*Rymosia edwardsi* f. 20, *grisea* f. 21 p. 464, *rufescens* f. 22, *ferruginea* f. 23 p. 465, **spp. n.**, Oligocene Isle of Wight, COCKERELL Ann. Nat. Hist. 7.

Sciophila plurisetosa **sp. n.** Scotland p. 121, EDWARDS Scott. Nat. 1921.

†*Symmerus balticus* **sp. n.** Prussian amber, EDWARDS p. 435 Ann. Nat. Hist. 7.

CHIRONOMIDAE.

Parasites of Chironomid larvae, ASHWORTH p. 15 Naturalist 1921.

List of *Chironomidae* of Westphalia pp. 19-63, THIENEMANN Jahresh. Prov. Ver. Wiss. Munster 46 1918.

Chironomidae of Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Tables of Chironomid pupae and larvae, pp. 148-162, LENZ D. ent. Zs. 1921.

Keys to genera of *Chironomariae* pp. 269-277, KIEFFER Ann. soc. sci. Bruxelles 40; also pp. 1-56 Ann. soc. ent. France 90. Many new generic names proposed (see below), a number without species.

Eggs and egg-masses of *Chironomidae*, MUNSTERHELM Act. Soc. Fauna et Fl. Fenn. 47 No. 2 1920.

Ablabesmyia limbata p. 24 pl. ii fig. 37, *quadrinotata* p. 25 pl. ii fig. 38, spp. n., Arctic Siberia, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918.

Acanthoconops gen. n., *spinosifrons* sp. n. Zanzibar p. 24, and for *Leptoconops* part, CARTER Bull. ent. Res. 12. — *Acanthoconops* = *Styloconops* Kieffer. p. 268, KIEFFER Arch. Inst. Pasteur Afrique du Nord 1.

Allotanytarsus gen. n. p. 275, KIEFFER Ann. soc. sci. Bruxelles 40.

Arctomyia gen. n. p. 18, *Chironomidae*, *sibirica* sp. n. Arctic Siberia p. 19 pl. ii figs. 24-28, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918.

Atrichopogon pruinosis p. 559; *haemorrhoidalis*, *insularis*, *rufescens*, Formosa, *flavidus* Philippine Is p. 560, spp. n., KIEFFER Philip. J. Sci. 18. — *A. brevicellula*, *conglomeratus*, p. 8, with var. *niloticus*, *nilicola*, p. 9, *kribiensis* p. 10, spp. n., Africa, KIEFFER Ann. Soc. ent. France 90.

Bezzia insularis, *nigriclava*, spp. n., Formosa p. 571, KIEFFER Philip. J. Sci. 18.

Brillia sylvestris sp. n. Belgium p. 82, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Brunieria gen. n. near *Tanytarsus*, *grandiforceps* sp. n. Schleswig-Holstein, KIEFFER p. 288 Bul. Soc. ent. France 1921.

Calochironomus gen. n. p. 274, KIEFFER Ann. soc. sci. Bruxelles 40; p. 32 Ann. soc. ent. France 90.

Camptocladus trilineatus p. 15 pl. ii fig. 17, *incertus* p. 15 pl. ii fig. 18. *globifer* p. 16 pl. ii figs. 19, 20, spp. n., Arctic Siberia, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918. — *C. forcipatus* p. 87, *aquatilis*, *vesparum*, p. 88, 169, *truncorum* p. 89, 168, *punctipennis* p. 91 *hydrophilus* p. 169, spp. n., GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Carteria gen. n. p. 590, *longilobus* var. n. *fulviventris* p. 591 Formosa, KIEFFER Philip. J. Sci. 18. — *C. [? gen. n.]* p. 273, KIEFFER Ann. soc. sci. Bruxelles 40.

Ceratopogon chrysothrix, *fuscimanus*, spp. n., Formosa, p. 557, KIEFFER Philip. J. Sci. 18. — *C. niligena* p. 4, *leucochaetus* p. 5, *kribiensis* p. 6, spp. n., Africa, KIEFFER Ann. Soc. ent. France 90.

Chironomus brayi p. 133, *arundineti* p. 140, *signaticollis* p. 141, *corniger* p. 144, *latidens* p. 147, *rousseaui* p. 148, *inermifrons* p. 151, *obtusidens*, *longistylus*, p. 152, *beguaerti* p. 154, *vitiosus* p. 160, *cinctellus*, *varus*, p. 162, *mucronatus* p. 164, *denticulatus* p. 174, *annulimanus* p. 175, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4. — *C. sauterianus*, *aurantiacus*, spp. n., p. 589, *circumdatulus* var. n. *anomalous* p. 590 Formosa, KIEFFER Philip. J. Sci. 18. — *C. tripartitus* sp. n. Suez p. 19, KIEFFER Bul. Soc. Ent. Egypt 1920 (1921). — *C. flavoviridis* p. 7, *brevimanus* p. 8, pl. i fig. 7, spp. n., Arctic Siberia, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918. — *C. thoneuxi*, *pseudopedellus*, p. 168, *simpler*, *longicauda*, *mutilis*, *virtunensis*, p. 169, spp. n., *aprilinus* var. n. *obscurus* p. 168, *pedellus* var. n. *cinereiventris* p. 169, Belgium, and key to Belgian spp., GOETGHEBUER Bull. soc. ent. Belg. 3.

Cladopelma gen. n. p. 274, KIEFFER Ann. soc. sci. Bruxelles 40; p. 31 Ann. soc. ent. France 90.

Clinochironomus gen. n. p. 272, KIEFFER Ann. soc. sci. Bruxelles 40.

Clinohelea subsessilis sp. n. Belgium p. 181, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Corynoneura pseudosimilis sp. n. Belgium p. 73, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Cricotopus albicornis p. 94, *similis*, *bicinctellus*, p. 95, *speciosus* p. 96, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Cryptochironomus petiolatus, *subroseus*, *sauteri*, *olivaceus*, spp. n., Formosa p. 582, KIEFFER Philip. J. Sci. 18.

Culicoides alboquattatus Formosa, *philippinensis*, Philippine Is., spp. n., p. 563, KIEFFER Philip. J. Sci. 18.—*C. quinquepunctatus*, *edwardsi*, spp. n., Belgium p. 177, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.—*C. vitreipennis* p. 108, *puripennis* p. 109, *tentorius* p. 110 pl. iv f. 1, *odiatu* p. 112, *newsteadi* p. 113 f. 3, *odibilis* p. 114 f. 2, spp. n., Palestine, AUSTEN Bull. ent. Res. 12.—*C. heliophilus* sp. n. Britain p. 124, EDWARDS Scott Nat. 1921.—*C. cordatus* Courland p. 114, *langeroni* Tunis p. 262 figs., KIEFFER Arch. Inst. Pasteur Afrique du Nord 1.—*C. oxystoma*, life-history, pp. 272-278 pl. xviii, PATEL Rep. ent. meeting Pusa 4.—*C. (Oxyhelea) subg. n. p. 14) dentatus* p. 13, *bisignatus* p. 14, *citrinus* p. 15, *quadrisingnatus* p. 16, *octosignatus*, *nilogenus*, p. 17, *kribiensis* p. 18, *signatus* p. 19, *nilophilus* p. 20, *trisignatus* p. 21, spp. n., Africa, KIEFFER Ann. Soc. ent. France 90.

Dactylocladius vernalis p. 83, *argen-tatus* p. 84, *ochraceus* pp. 84, 168, *glabripennis* p. 85, *albipennis* p. 86, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Dasyhelea obscura, life-history, larval anatomy, parasites, KEILIN Ann. Nat. Hist. 8 pp. 576-590 pls. xix & xx.—*D. formosana* sp. n. Formosa p. 565, KIEFFER Philip. J. Sci. 18.—*D. punctatipennis*, *nudipennis*, spp. n., Cameroons p. 11, KIEFFER Ann. Soc. ent. France 90.—*D. polita* sp. n. Scotland p. 124, EDWARDS Scott Nat. 1921.—*D. semistriata* sp. n. Belgium p. 176, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Diamesa appendiculata sp. n. Arctic Siberia p. 23 pl. ii fig. 35, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918.—*D. fulva* sp. n. New York p. 229, JOHANNSEN Ent. News 32.

Dicrohelea albiclava sp. n. Formosa p. 566, KIEFFER Philip. J. Sci. 18.

Diplosella subg. n. (of *Culicoides*), *sergenti* sp. n. Algeria p. 113, KIEFFER Arch. Inst. Past. Afrique du Nord 1.

Dolichoprymna gen. n. p. 21 *Chironomidae*, for *Smittia longipennis*, Holmgr., LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918.

Endochironomus larva, peculiar method of hibernation, fig. p. 286, THIENEMANN Zool. Anz. 52.

Gillotia gen. n. p. 272, KIEFFER Ann. soc. sci. Bruxelles 40; p. 31 Ann. soc. ent. France 90.

Goetghebueria gen. n. p. 274, KIEFFER Ann. soc. sci. Bruxelles 40.

Gymnohelea gen. n. types *Atrichopogon singularis* and *longiserra* p. 115, KIEFFER Arch. inst. Past. Afrique du Nord 1.

Harnischia gen. n. p. 273, KIEFFER Ann. soc. sci. Bruxelles 40.

Hexatanytarsus gen. n. p. 34, KIEFFER Ann. soc. ent. France 90.

Holoconops transversalis Tunis p. 112, *mediterraneus* Algeria p. 264, spp. n., KIEFFER Arch. Inst. Pasteur Afrique du Nord 1.

Hydrobaenus glacialis sp. n. Arctic Siberia p. 17 pl. ii figs. 22, 23, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918.

Johannsenomyia kiefferi sp. n. Belgium p. 182, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Kempia pusilla sp. n. Cameroons p. 6, KIEFFER Ann. Soc. ent. France 90.

Kribiobius gen. n. p. 274, KIEFFER Ann. soc. sci. Bruxelles 40; p. 33 Ann. soc. ent. France 90.

Kribiocalis gen. n. p. 271, KIEFFER Ann. soc. sci. Bruxelles 40; p. 30 Ann. soc. ent. France 90.

Kribiocharis gen. n. p. 271, KIEFFER Ann. soc. sci. Bruxelles 40; p. 29 Ann. soc. ent. France 90.

Kribiocosmus gen. n. p. 28, *ornatipes* sp. n. Cameroons p. 48, KIEFFER Ann. France 90; v. etiam p. 271 Ann. soc. sci. Bruxelles 40.

Kribiocyrtus gen. n. p. 28, *viridiventris* p. 44, *flaviventris* p. 45, spp. n., Africa, KIEFFER Ann. soc. ent. Fr. 90; v. etiam p. 270 Ann. soc. sci. Bruxelles 40.

Kribiodorum gen. n. p. 28, *pulchrum* sp. n. Cameroons p. 46, KIEFFER Ann. France 90; v. etiam p. 270 Ann. soc. sci. Bruxelles 40.

Kribiodosis gen. n. p. 28, *clavigera* p. 41, *distans*, *fuscithorax*, p. 42, *fasciata* p. 43, *flaviventris* p. 44, spp. n., Cameroons, KIEFFER Ann. France 90; v. etiam p. 270 Ann. soc. sci. Bruxelles 40.

Kribidoxa pulchripennis sp. n. Philippine Is. p. 587, KIEFFER Philip. J. Sci. 18.—K. [gen. n.] p. 272, KIEFFER Ann. soc. sci. Bruxelles 40; p. 30 Ann. soc. ent. France 90.

Kribiomimus gen. n. p. 29, *leucolabis* with var. *tibialis* p. 50, *bifasciatus* p. 51, *flavipes*, *pallidipes*, p. 52, spp. n., Cameroons, KIEFFER Ann. France 90; v. etiam Ann. soc. sci. Bruxelles 40.

Kribiomyia gen. n. p. 271, KIEFFER Ann. soc. sci. Bruxelles 40; p. 30 Ann. soc. ent. France 90.

Kribionympha gen. n. p. 271, KIEFFER Ann. soc. sci. Bruxelles 40; p. 29 Ann. soc. ent. France 90.

Kribiopelma gen. n. p. 34, KIEFFER Ann. soc. ent. France 90.

Kribiophilus gen. n. p. 30, KIEFFER Ann. soc. ent. France 90.

Kribiothauma gen. n. p. 27, *pulchellum* sp. n. Cameroons p. 39, KIEFFER Ann. France 90; v. etiam p. 270 Ann. soc. sci. Bruxelles 40.

Kribiotima gen. n. p. 274, KIEFFER Ann. soc. sci. Bruxelles 40.

Kribioxenus gen. n. p. 29, *pallidus* sp. n. Cameroons p. 53, KIEFFER Ann. ent. soc. France 90; v. etiam p. 271 Ann. soc. sci. Bruxelles 40.

Lasiohelea gen. n. type *Atrichopogon pilosipennis* Kieff. p. 115, KIEFFER Arch. inst. Past. Afrique du Nord 1.—*L. ornatipes* p. 1, *nilotica* p. 2, spp. n., Africa, KIEFFER Ann. soc. ent. France 90.

Leptoconops, revision pp. 1–28, *longicornis* p. 11, *grandis* p. 12, Australia, *rhodesiensis* Africa p. 14, *siamensis* Siam p. 20, spp. n., *kerteszi* var. n. *americanus* p. 22, CARTER Bull. ent. Res. 12.

Limnochironomus niveicauda sp. n. Philippine Is. p. 585, KIEFFER Philip. J. Sci. 18.

Metriocnemus aestivalis p. 76, *longitarsus* p. 77, *auripilus* p. 79, *hirtellus* p. 80, *lacteolus* p. 81, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Microconops gen. n. p. 108, *vexans* sp. n. Algeria p. 110 figs. 1, 2, KIEFFER Arch. Inst. Pasteur Afrique du Nord 1.

Microtendipes stictopterus Philippine Is., *dimidiatus* Formosa, spp. n., p. 580, KIEFFER Philip. J. Sci. 18.

Mixohhelea ciliaticrus sp. n. Formosa p. 568, KIEFFER Philip. J. Sci. 18.

Monodiamesa gen. n. p. 287 type *Prodiamesa bathyphila*, KIEFFER Bull. Soc. ent. France 1921.

Nilobezzia gen. n. *armata* sp. n. p. 24. Sudan with var. *flaviventris*, *albipennis* and *fusca* p. 25, KIEFFER Ann. Soc. ent. France 90.

Nilodorum gen. n. p. 272, KIEFFER Ann. soc. sci. Bruxelles 40; p. 30 Ann. soc. ent. France 90.

Nilodosis gen. n. p. 30, KIEFFER Ann. soc. ent. France 90.

Nilohhelea gen. n., *albipennis* sp. n. Sudan p. 22, KIEFFER Ann. Soc. ent. France 90.

Nilothauma gen. n. p. 27, *pictipenne* sp. n. Sudan p. 37, KIEFFER Ann. France 90; v. etiam p. 270 Ann. Soc. sci. Bruxelles 40.

Nilomyia gen. n. p. 27, *aculeata* sp. n. Sudan p. 38, KIEFFER Ann. France 90; v. etiam p. 270 Ann. soc. sci. Bruxelles 40.

Orthocladius marginatus p. 10 pl. i fig. 9, *nitidoscutellatus* p. 11 pl. i fig. 10, *binotatus* p. 12 pl. i fig. 12, *pallidicornis* p. 13 pl. i fig. 13, *paradoxus* p. 14 pl. i figs. 14-16, spp. n., Arctic Siberia, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8 Phys.-Math. 29 No. 8 1918.

Orthoscottia gen. n. p. 275, KIEFFER Ann. soc. sci. Bruxelles 40.

Ortrogia gen. n. p. 275, KIEFFER Ann. soc. sci. Bruxelles 40.

Oxyhelea subg. n. vide *Culicoides*.

Palpomyia aterrima sp. n. Belgium p. 183, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.—*P. atriclava* sp. n. Formosa p. 569, KIEFFER Philip. J. Sci. 18.—†*P. edwardsi* sp. n. Oligocene Isle of Wight p. 469 f. 31, COCKERELL Ann. Nat. Hist. 7.

Pentapedilum pygmaeum sp. n. Formosa p. 592, KIEFFER Philip. J. Sci. 18.

Phytochironomus philippinarum sp. n. Philippine Is. p. 586, KIEFFER Philip. J. Sci. 18.

Polypedilum macrotrichum, *atrinerve* p. 577, *sauteri* p. 578, spp. n., Formosa and key to species p. 577, KIEFFER Philip. J. Sci. 18.

Probezzia bakeri, Philippine Is., myrmedon Formosa, spp. n., p. 570, KIEFFER Philip. J. Sci. 18.

Procladius philippinensis sp. n. Philippine Is. p. 573, KIEFFER Philip. J. Sci. 18.

Proriethia gen. n. p. 272, KIEFFER Ann. soc. sci. Bruxelles 40.

Protersesthes gen. n. type *Tersesthes brasiliensis* Lutz. p. 107, KIEFFER Arch. Inst. Pasteur. Afrique du Nord 1.

Psectrocladius curtistylus p. 101, *luteolus* p. 102, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Psectrotanypus longipennis sp. n. Belgium p. 57, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Psilohelea edentata p. 124, *P. (Isohelea) nitidula*, *perpusilla* p. 125, spp. n., Scotland, EDWARDS Scott. Nat. 1921.

Rheotanytarsus formosae sp. n. Formosa p. 592, KIEFFER Philip. J. Sci. 18.

Rosenia gen. n. p. 275, KIEFFER Ann. soc. sci. Bruxelles 40; p. 34 Ann. soc. ent. France 90.

Sergentia gen. n. p. 288, *profundorum* sp. n. Poland p. 289, KIEFFER Bull. Soc. ent. France 1921.

Stictochironomus festivus sp. n. Sudan p. 54, KIEFFER Ann. ent. soc. France 90.

Stilobezzia rufa sp. n. Cameroons p. 24, KIEFFER Ann. Soc. ent. France 90.

Styloconops gen. n. type *Leptoconops albiventris* Meij. p. 107, KIEFFER Arch. Inst. Pasteur Afrique du Nord 1.

Tanypus incurvatus pp. 61, 167, *pseudornatus* pp. 64, 168, *flavipubens* p. 65, *longipalpis*, *brevitibialis* p. 66, *fuliginosus* p. 67, *flavoscutellatus* p. 68, *nemorum* p. 68, *triannulatus* p. 70, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.—*T. incurvatus* p. 167, *pseudornatus* p. 168, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.—*T. noctivagus* sp. n. Suez. p. 18, KIEFFER Bul. Soc. Ent. Egypt. 1920 (1921).

Tanytarsus tendipediformis p. 107, *semiviridis* p. 108, *albiforceps* p. 109, *uncinatus* p. 111, *cornutus* p. 112, *tonnoiri* p. 114, *saltuum* p. 115, *photophilus* p. 116, *inaequalis* p. 118, *subaequalis* p. 120, *intricatus* p. 121, *curtistylus*, *tenellulus* p. 122, *globulifer* p. 123, *nigrofasciatus* p. 126, *sexannulatus* p. 127, *retusus* p. 128, *tetrachaetus* p. 130, *bidentatus* p. 172, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Tersesthes camelorum sp. n. Algeria p. 111, KIEFFER Arch. Inst. Pasteur Afrique du Nord 1.

Trichocladius nitens sp. n. Formosa p. 576, KIEFFER Philip. J. Sci. 18.—*T. brunnipes*, *funebis* p. 99, *nudipes* p. 100, spp. n., Belgium, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Trichotanypus insularis sp. n. p. 574 and var. n. *transiens* p. 575 Formosa, KIEFFER Philip. J. Sci. 18.

Tripedilum gen. n. p. 28, *armatifrons* sp. n. Cameroons p. 47, KIEFFER Ann. France 90; v. etiam p. 271 Ann. soc. sci. Bruxelles 40.

Trissocladius nigerrimus sp. n. Belgium p. 92, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

Xenochironomus gen. n. p. 273, KIEFFER Ann. soc. sci. Bruxelles 40.

Xenotanylarsus gen. n. p. 277, KIEFFER Ann. soc. sci. Bruxelles 40.

Zavrelia nigrifrons sp. n. Belgium p. 133, GOETGHEBUER Mém. Mus. Belg. 8 fasc. 4.

CULICIDAE.

Oviposition experiments, SHARMA & SEN pp. 192-198 pls. xxxi-xxxv Rep. ent. meeting Pusa 4.

Ova of *Culicidae* (German) pp. 336-355, BRESSLAU Biol. Centralbl. 40.

Critical observations on mouth parts of *Culicidae*, pp. 258-280, VOGEL Zool. Jahrb. Jena Abt. f. Anat. 42 1921.

Biological and phenological observations on *Culicidae* in Jena district, OSTERWALD & TÄNZER Centralbl. Bakt. Jena Ab. I 85 pp. 42-46.

Critical remarks, with illustrations, on morphological points in Eckstein's "Die einheimischen Stechmücken," pp. 248-256, MARTINI Centralbl. Bakt. Jena Ab. I 86.

Biological observations on *Culicidae* in Lausanne district, pp. 31-33, GALLI-VALERIO Centralbl. Bakt. Jena Ab. I 86.

Structure and use of caudal tufts of larvae, LAMBORN pp. 91-97 figs. Bull. ent. Res. 12.

Culicidae, morphogenetic researches and observations on larvae pp. 136-182 27 figs., TÄNZER & OSTERWALD Arch. Natg. 87 Abt. A Heft 7.

Influence of drought on mosquito life, MACGREGOR pp. 205-209 Bull. ent. Res. 12.

Mosquitoes, effect of temperature on development, pp. 93-105, ECKSTEIN Zs. angew. Ent. 6 1919.

Revision of the palaearctic *Culicidae*, with notes on larvae, EDWARDS Bull. ent. Res. 12 pp. 263-351 38 figs.

Culicidae, in saline waters, BALFOUR pp. 29-34 Bull. ent. Res. 12.

List of Palestine *Culicidae*, BARRAUD pp. 387-395 Bull. ent. Res. 11.

Culicidae in Costa Rica p. 170, SERRE Bul. Muséum Paris 1921.

Culicinae of France, conclusion. p. 162, SÉGUY Bul. Muséum Paris 1921.

Keys to ♂s of Bavarian *Culicidae*, and many figures, ECKSTEIN Centralbl. Bakt. Jena Ab. I 84 pp. 223-240.

Distribution of anopheline mosquitoes in India, CHRISTOPHERS pp. 205-215 pl. xxxvii, Rep. ent. meeting Pusa 4.

The *Culicidae* of Argentina, DYAR pp. 148-150, Insector Ins. Menstr. 9.

Notes on South American *Culicidae*, BONNE-WEFSTER, BONNE & DYAR pp. 1-31 Insector Ins. Menstr. 9.

Culicidae of Sweden with keys to genera and species pp. 46-52, EDWARDS Ent. Tidskr. 42.

Aedes galloisi p. 47, *flavopictus* p. 52, *chemulpoensis* p. 54, *horishensis* p. 58 *seoulensis* p. 61, *watasei* p. 64, *formosensis* p. 67, *hatorii* p. 70, *omurensis* p. 73, *esoensis* p. 77, spp. n., Japan, YAMADA Annot. Zool. Jap. 10.—*A.* synonymical notes on 23 palaearctic species, SÉGUY Bull. Soc. ent. France 1921 pp. 162-165.—*A.* (*puncator* group) in America, synonymy and notes, DYAR pp. 69-80 pl. Insector Ins. Menstr. 9.—*A. aldrichi* larva, HEARLE p. 48 Canad. Ent. 53.—*A. (Culiselsa) perichares* sp. n. Costa Rica p. 36, DYAR Insector Ins. Menstr. 9.—*A. (Ecculex) rhector* sp. n. East Africa p. 51 fig., DYAR T.c.—*A. (Finlaya)* notes on American species pp. 151-153.—*A. (F.) eucleptes* Canton p. 147; *A. heteropus* Costa Rica p. 152; *A. (Ochlerotatus) dysanor* New York p. 70 fig. spp. n., DYAR T.c.—*A. (O.) berlandi* sp. n. Paris p. 192 figs., SÉGUY Bull. Soc. ent. France 1921.—*A. (O.) freyi* N. Europe p. 306, *albescens* Siberia p. 308, *parvulus* Finland p. 314 *A. (Stegomyia) cretinus* Crete p. 325, spp. n., EDWARDS Bull. ent. Res. 12.—*A. (S.) christianus* sp. n. China p. 148, DYAR T.c.—*A. (S.) dendrophila* W. Africa, *A. (Ochlerotatus) bancroftianus* p. 74, *ashworthi* p. 75 Australia, *A. (Skusea) punctipes* Burma p. 77, spp. n., EDWARDS Bull. ent. Res. 12.

Anopheles larva, Thoracic appendage, IYENGAR p. 216 pl. xxxviii Rep. ent. meeting Pusa 4.—*Anopheles* in California, HERMS pp. 410–414 J. econ. Ent. 14.—*A. elutus* Mesopotamia p. 273, *punctibasis* Japan p. 274, *spp. n.*, *turkhudi* var. *n. persicus* p. 280, EDWARDS Bull. ent. Res. 12.—*A. flaviceps* Sudan p. 69, *amictus* Queensland p. 71, *spp. n.*, *leucosphyrus* var. *n. hackeri*, *punctulatus* Dön. p. 70, EDWARDS T.c.—*A. occidentalis* life-history, FREEBORN pp. 415–421 J. econ. Ent. 14.

Barraudius subg. *n.* for part of *Culex* type *pusillus*, EDWARDS p. 332 Bull. ent. Res. 12.

Culex, synonymical notes on 5 palaearctic species, SÉGUY p. 165 Bull. Soc. ent. France 1921.—*Culex* characters of South American species, BONNE-WEPSTER & BONNE pp. 18–22 synonymy, DYAR pp. 28–30 Insecutor Ins. Menstr. 9.—*Culex* of *tarsalis* group in Texas pp. 32–34, DYAR T.c.—*C. quinquefasciatus* swarming p. 32, DYAR T.c.—*C. declarator* a distinct species, *virgultus* male genitalia pp. 194–195, DYAR T.c.—*C. jugorum* male hypopygium, SÉGUY p. 39 fig. Bull. Soc. ent. France 1921.—*C. crinicauda* *n. n.* for *parvus* Tayl. p. 77, *taylori* *n. n.* for *annulirostris* Tayl., *basicinctus* *n. n.* for *annulata* Tayl., *ventrilloni*=(*albigena* End.), *quasigelidus*=(*auritaenia* End.), *jensei* de M.=(*curtipalpis* Edw.) p. 78, EDWARDS Bull. ent. Res. 12.—*C. orientalis* *sp. n.* Japan p. 338, EDWARDS T.c.—*C. escomeli* *sp. n.* Peru p. 41, BRÉTHES Rev. Chil. Hist. Nat. 24.—*C. chidesteri* *sp. n.* Panama p. 117, DYAR Insecutor Ins. Menstr. 9.—*C. thriambus* *sp. n.* Texas p. 33, DYAR T.c.—*C. (Carrollia) metampsyta* *sp. n.* Costa Rica p. 154, *bonnei* nom. *n.* for *iridescens* Bonne (nec Lutz) p. 155, DYAR T.c.—*C. (Choeroporpa) alfaroi* p. 34, *holoneus* p. 35, *pasadaemon*, *merodaemon* p. 100, *spp. n.*, Costa Rica, DYAR T.c.—*C. (Choeroporpa) pasadaemon*, *merodaemon*, *dysmathes*, *holoneus*, male hypopygium p. 114 figs., DYAR T.c.—*C. (Choeroporpa) indecorabilis*, male described pp. 155–157, DYAR T.c.—*C. (Choeroporpa)* notes on North American species pp. 37–39, DYAR T.c.—*C. (Choeroporpa) dysmathes* *sp. n.* Panama p. 47, DYAR & LUDLOW T.c.—*C. (Helcoporpa) trifidus* *sp. n.* Costa Rica

p. 115, DYAR T.c.—*C. (Melanoconion) homoeopas* *sp. n.* New Orleans p. 46, key to subgenus p. 47, DYAR & LUDLOW T.c.

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Grabhamia dorsalis variation pp. 193–205 2 figs., SCHISCHKOFF & KONSULOFF Zool. Anz. 53.

Haemagogus key and discussion of species pp. 101–114, DYAR Insecutor Ins. Menstr. 9.—*H. (Haemagogus) anastasionis* p. 155, *iridicolor* p. 106 Costa Rica, *gladiator* Panama p. 108, *chalcospilans* Panama p. 110, *janthinomys* Trinidad p. 112, *spp. n.*, DYAR T.c.—*H. (Stegoconops) panarchys* *sp. n.* Ecuador p. 104, DYAR T.c.

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Limatus paraensis synonymy, BONNE-WEPSTER & BONNE p. 5 Insecutor Ins. Menstr. 9.

Lutzia vorax *sp. n.* Japan p. 327, EDWARDS Bull. ent. Res. 12.

Megarhinus manicatus p. 630, *aurifluus* p. 631, *spp. n.* Formosa, EDWARDS Ann. Nat. Hist. 8.—*M. (Toxorhynchites) kempi* India, *klossi* Malay States p. 72, *gravelyi* India p. 73, *spp. n.*, EDWARDS Bull. ent. Res. 12.

Myzomyia immaculata male genitalia figured p. 41, SWELLENGREBEL Tijdschr. Ent. 64.

Myzorhynchus spp. male genitalia figured pp. 37–40, SWELLENGREBEL Tijdschr. Ent. 64.

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Opifex fuscus Hutton, characters, EDWARDS Bull. ent. Res. 12 p. 73.

Prosopolepis prolepidis male hypopygium p. 115 fig., DYAR Insecutor Ins. Menstr. 9.

Psorophora coffini male described, DYAR p. 31 Insecutor Ins. Menstr. 9.

Rachionotomyia aenea Malay States, *purpurata* Fiji, spp. n. p. 79, EDWARDS Bull. ent. Res. 12.

Rachisoura filipes W. = (*Steg. hilli* Tayl.), EDWARDS p. 79 Bull. ent. Res. 12.

Sabethes bipartipes synonymy, BONNE WEPSTER & BONNE p. 1 Insecutor Ins. Menstr. 9.—*S. bipartipes* larva and pupa described, BONNE-WEPSTER & BONNE pp. 98-99 T.c.

Sabethinus male genitalia, table of species pp. 3-5, BONNE-WEPSTER & BONNE pp. 3-5 Insecutor Ins. Menstr. 9.

Sabethoides nitidus male described, DYAR p. 116 Insecutor Ins. Menstr. 9.

Stegomyia quasiornata Tayl. to *Rachionotomyia*, EDWARDS p. 80 Bull. ent. Res. 12.

Stethomyia aikenii male genitalia figured p. 41, SWELLENGREBEL Tijdschr. Ent. 64.

Theobaldia arctica in Cheshire, CARTER p. 39 Entomol. 54.

Toxorhynchites minimus Theob. ♀ described p. 189, SENIOR-WHITE Spolia Zeylan. 11 1919.

Uranotaenia orthodoxa sp. n. Costa Rica p. 118, DYAR Insecutor Ins. Mens. 9.

Wyeomyia fallax synonym of *oblita*, BONNE-WEPSTER & BONNE p. 10, Insecutor Ins. Menstr. 9.

PSYCHODIDAE, DIXIDAE.

Dixidae of Belgium, keys to adults and larvae, figs., pp. 183-188, GOETGHEBUER Bull. soc. ent. Belg. 3.

Brumptomyia subg. n. of *Phlebotomus* p. 283, FRANÇA & PARROT Arch. inst. Past. Afrique du Nord 1.

Dixa pyrenaica p. 200, goetghebueri p. 201, spp. n. France, male characters, figs., SÉGUY Bull. Soc. ent. France 1921.—†*D. priscula* sp. n. Oligocene Isle of Wight p. 466 f. 26, COCKERELL Ann. Nat. Hist. 7.

†*Palaeosykorax molophilina* sp. n. Prussian amber, EDWARDS p. 437 Ann. Nat. Hist. 7.

Phlebotomus classification pp. 279-284, FRANÇA & PARROT Arch. inst. Past. Afrique du Nord 1.—*P.* notes on, pp. 269-278, PARROT Arch. inst. Past. Afrique du Nord 1.—*P.* in Palestine, AUSTEN pp. 118-120 Bull. ent. Res. 12.—*P. papatasi* in Georgia, KANDELAKI Travaux du Museum de Georgie No. 1 1920.—*P. papatasi*, nanism in, pp. 103-106, FRANÇA Arch. inst. Past. Afrique du Nord 1.—*P. ariasi* sp. n. Barcelona p. 53, TONNOIR Ann. Soc. ent. Belgique 61.—*P. neglectus* sp. n. Albania, TONNOIR p. 333 Ann. Soc. ent. Belgique 61.—*P. fallax* sp. n. Algeria-Tunisia p. 99 figs. 2, 3, 4, a, d, PARROT Arch. inst. Pasteur Afrique du Nord 1.—*P. tejerae* sp. n. Venezuela p. 71, and monograph of genus, systematics, morphology, biology, pathogeny, keys etc., LARROUSSE Etude Syst. méd. Phlebotomes Travail Lab. Parasit. Fac. Méd. Paris 1921.—*P. brumpti* sp. n. Brazil, p. 659 LARROUSSE Bull. Soc. path. exotique Paris 13 1920.—*P. minutus* var. *fallax* var. n. Algeria p. 37, PARROT Bull. soc. hist. nat. Alger. 12.

Prophlebotomus subg. n. p. 282, FRANÇA & PARROT Arch. inst. Past. Afrique du Nord 1.

Psychoda sp. from Macquarie I., TILLYARD p. 25 fig. 21 Sci. Rep. Austr. Ant. Exp. 1911-14 Ser. C. 5 pt. 8 1920.—†*P. (?) leucospila* sp. n. Oligocene Isle of Wight p. 466 f. 25, COCKERELL Ann. Nat. Hist. 7.

Psychodidae in Canaries, TONNOIR p. 296 Bul. Muséum Paris 1921.

SIMULIIDAE, BIBIONIDAE.

Simuliidae systematic arrangement, key, pp. 43-46, ENDERLEIN Zool. Anz. 53.

Revision of North American *Bibionidae*, MCATEE P. U. S. Mus. 60 Art. 11 pp. 1-27

Anapausis cismarina sp. n. Virginia p. 124, MCATEE P. ent. Soc. Washington 23.

Bibio hortulanus biology pp. 92-96, MOLZ Zs. angew. Ent. 7.—*Bibio* life-histories, MORRIS pp. 221-233 figs. Bull. ent. Res. 12.—*B. holtii* sp. n. Arizona p. 11, *xanthopus palliatus* subsp. n. p. 16, MCATEE P. U. S. Mus.

60 Art. 11.—†*B. oblitus* f. 29, *extremus* f. 30, spp. n. Oligocene Isle of Wight, COCKERELL p. 468 Ann. Nat. Hist. 7. —†*B. infumatus* p. 214, *brachypteroides* p. 215, spp. n. Aquitanien Siebengebirge, figs., MEUNIER Zs. D. Geol. Ges. 67 1915.

Dilophus caurinus p. 19, *emarginatus* p. 20, *proximus*, *sectus* p. 22, *strigilatus* p. 24, spp. n. U. S., McATEE P. U. S. Mus. 60 Art. 11.

†*Nevermannia cerberus* sp. n. E. Prussia p. 74, ENDERLEIN Zool. Anz. 53.

†*Plecia acourti* sp. n. Oligocene Isle of Wight p. 467 f. 28, COCKERELL Ann. Nat. Hist. 7.—†*P. superba* p. 207, *pulchella* p. 216, spp. n. Aquitanien, Siebengebirge figs., MEUNIER Zs. D. Geol. Ges. 67 1915.

†*Protomyia elegantula* sp. n. Aquitanien, Siebengebirge p. 226 fig., MEUNIER Zs. D. Geol. Ges. 67 1915.

Reichertella gracilis sp. n. Washington p. 123, McATEE P. ent. Soc. Washington 23.

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Simulium, as conveyor of disease, DRY Bull. ent. Res. 12 pp. 233-238.—*S.*, list of Belgian spp. p. 32, TONNOIR Bull. ent. soc. Belg. 3.—*S. canariense* p. 292, *submorsitans* p. 294, *pseudequinum* p. 295 spp. n. Canaries, SÉGUY Bul. Museum Paris 1921.—*S. flavipes* sp. n. Palestine p. 116, AUSTEN Bull. ent. Res. 12.—*S. cinereum* Macq. note on habits, pp. 65-66, DU BUYSSON Misc. Ent. 25.—*S. (Prosimulium) gallii* Switzerland p. 141, *fulvipes* Bulgaria p. 142, *S. gracilipes* Morocco p. 143, spp. n. EDWARDS Ann. Nat. Hist. 7.

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Blepharoceridae of New Zealand, early stages etc., CAMPBELL pp. 258-288 figs. Tr. N. Z. Inst. 53.

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TIPULIDAE, RHYPHIDAE, PTYCHOPTERIDAE.

Catalogue raisonné des Tipulidae de Belgique (continued), pp. 47-58, 105-125, keys, GOETGHEBUER & TONNOIR Bull. soc. ent. Belg. 3.

†Monograph of *Tipulidae* of Amber pp. 477-493, MEUNIER Zs. D. Geol. Ges. 68 1916.

Larva and pupa of a species of *Tipulidae* from Macquarie I., TILLYARD p. 24, figs. 18-20 Sci. Rep. Aust. Ant. Exp. 1911-14 Ser. C. 5 pt. 8 1920.

British *Limnobiidae*, records and corrections, keys to species, 2 plates, pp. 196-230, EDWARDS Trans. ent. soc. London 1921.

Adelphomyia pleuralis p. 251, *hazletonensis* p. 252, spp. n., N. Amer., DIETZ Trans. Amer. ent. soc. 47.—†*A. disjunctula* sp. n. oligocene Isle of Wight, COCKERELL & HAINES p. 83 Entomol. 54.

Amphineurus minusculus sp. n. Queensland p. 555, ALEXANDER Ann. Nat. Hist. 8.

Atarba megaphallus sp. n. S. Amer. p. 59, ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.

Azymyia gen. n. (*Rhyphidae*), *furcata* sp. n. U.S. McATEE p. 49 with note on taxonomy by SHANNON p. 50, Proc. ent. Soc. Washington 23.

Brachypremna subsimilis sp. n. Corrientes p. 76, ALEXANDER Ent. News, 32.—*B. basilica* sp. n. S. Amer. p. 92. ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.

Bruchomyia, taxonomy, EDWARDS p. 437 Ann. Nat. Hist. 7.

Calolimnophila subgen. n. vide *Pseudolimnophila*.

†*Cladoneura scudderi* sp. n. Aquitanien, Siebengebirge, p. 288, fig., MEUNIER Zs. D. Geol. Ges. 67 1915.

Cnemuncosis gen. n. *hilgendorfi* sp. n. Japan p. 219, ENDERLEIN Zool. Anz. 52.

Conosia malagasya sp. n. Madagascar p. 315, ALEXANDER Ann. Nat. Hist. 8.

Crypteria carteri sp. n. Belgium p. 47, TONNOIR Bull. ent. soc. Belg. 3.

Cryptolabis tenuicincta sp. n. S. Amer. p. 73, ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.

Ctenacrosceles clavipes p. 111, *similis* p. 113, Formosa, *fulvipes* China p. 114, spp. n., EDWARDS Ann. Nat. Hist. 8.—*C. fijiensis* sp. n. Fiji p. 562, ALEXANDER Ann. Nat. Hist. 8.

Ctenolimnophila gen. n. *bivena* sp. n. S. Amer. p. 61, ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.

Cylindrotoma distinctissima oviposition pp. 128-135, 7 figs., LENZ Arch. Natg. 87 Abt. A Heft 7.

†*Cyrtaromyella* gen. n. *bastini* sp. n. Aquitanian, Siebengebirge, p. 229, MEUNIER Zs. D. Geol. Ges. 67 1915.

Dicranomyia paupercula p. 112, *machidai* p. 113, *unispinosa* p. 114, spp. n., Japan, ALEXANDER Ann. Ent. Soc. Amer. 14.—*D. selkirkii* sp. n. Juan Fernandez, ALEXANDER The Nat. Hist. of Juan Fernandez 3 Pt. 1 p. 25.—*D. flavescens*, *pennsylvanica* p. 239, *diversoides* p. 240, *varipes* p. 241, *pellucidiguttata* p. 242, spp. n. N. Amer., DIETZ Trans. Amer. ent. soc. 47.—*D. punctipennis* sp. n. Canaries p. 298, PIERRE Bul. Muséum Paris 1921.—*D. capnora* p. 47, *optabilis* p. 48, *egae* p. 49, *napoensis*, *rapax* p. 50, *acuminata* p. 51, spp. n. S. Amer., ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.—*D. halterella* sp. n. Britain p. 201, key to species p. 197, EDWARDS Trans. ent. soc. London 1921.—*D. capicola* p. 183, *confusa* p. 182, spp. n., S. Africa, ALEXANDER Ann. S. Afric. Mus. 18.—*D. misera* sp. n. New Guinea p. 131, RIEDEL Ann. Mus. Hungar. 18.—*D. terebrina* p. 305, *shawi* p. 306, *flavopyga* p. 307, *cinnamomota* p. 308, *venustipennis* p. 309, spp. n. Africa, ALEXANDER Ann. Nat. Hist. 7.—*D. mascarensis* sp. n. Reunion p. 310, ALEXANDER Ann. Nat. Hist. 8.—†*D. graciosa* p. 489, *sinuata* p. 490, spp. n., from amber, fig., MEUNIER Zs. D. Geol. Ges. 68 1916.—†*D. excavata* sp. n. Oligocene Isle of Wight p. 458 f. 7, COCKERELL Ann. Nat. Hist. 7.—†*D. undulata*,

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Dicranota rogersi sp. n. Michigan p. 136, ALEXANDER Canad. Ent. 53.—*D.* key to British species p. 225, EDWARDS Trans. ent. soc. London 1921.

Dictenidia sauteri sp. n. Formosa p. 225, ENDERLEIN Zool. Anz. 52.

Diotrepha fumicosta sp. n. S. Amer. p. 58, ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.

Dolichoheza (*Trichodolichoheza*) *aurantiaca* sp. n. S. Africa, p. 212 ALEXANDER Ann. S. Afric. Mus. 18.—*D. (T.) albogeniculata* sp. n. Uganda p. 170, ALEXANDER Ann. Nat. Hist. 8.

Elephantomyia insularis pseudosimilis subsp. n. p. 188, ALEXANDER Ann. S. Afric. Mus. 18.—*E. supernumeraria* sp. n. S. Amer. p. 60, ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.

†*Empeda hyalina* f. 5, *ferruginea* f. 6, spp. n. Oligocene Isle of Wight p. 457, COCKERELL Ann. Nat. Hist. 7.

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Euglochima subg. n. of *Dicranomyia* for *D. cuneiformis* Meij., ALEXANDER p. 207 Canad. Ent. 53.

Geranomyia gifuensis sp. n. Japan p. 114, ALEXANDER Ann. Ent. Soc. Amer. 14.—*G. atrostriata* sp. n. Formosa p. 101, EDWARDS Ann. Nat. Hist. 8.—*G. recondita* p. 42, *xanthoplaca* p. 43, *bicincta* p. 44, *separata* p. 45, spp. n. *bicincta angusticincta* p. 45 ssp. n. S. Amer., ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.—*G. costomaculata* sp. n. N. Amer. p. 237, DIETZ Trans. Amer. ent. soc. 47.—*G. annulirostris* sp. n. Canaries p. 298, PIERRE Bul. Muséum Paris 1921.—*G. rubrithorax* p. 186, *sex-ocellata* p. 185, *G. (Monophana) subimmaculata* p. 184, spp. n. S. Africa, ALEXANDER Ann. S. Afric. Mus. 18.—*G. sagittifer*, *nigronitida*, spp. n. Queensland p. 208, ALEXANDER Canad. Ent. 53.

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Goniotipula gen. n. *cuneipennis* sp. n. S. Africa, ALEXANDER p. 213 Ann. S. Afric. Mus. 18.

Gonomyia key to British species p. 208, EDWARDS Trans. ent. soc. London 1921.—*G. acuminata* p. 77, *falcifer*, *machaeria* p. 79, *phorocenia* p. 80, *clenophora* p. 81, *crepuscula*, *bispinosa* p. 82, *spicata* p. 83, spp. n. S. Amer., ALEXANDER Proc. Acad. Nat. Sci. Philadelphia 73.—*G. subserotina* p. 72, *G. (Gonomyella) maesta* p. 73, *illicis* p. 74, *G. (Leiponeura) trispinosa* p. 75, spp. n. Argentina, ALEXANDER Ent. News 32.—*G. adunca* sp. n. Argentina p. 294, ALEXANDER Ent. News 32.—†*G. indecisa* sp. n. oligocene Isle of Wight, COCKERELL & HAINES p. 111 Entomol. 54.—†*G. ferrea* p. 460 f. 12, *lutescens* f. 13, *grisea* f. 14 p. 461, spp. n. Oligocene Isle of Wight, COCKERELL Ann. Nat. Hist. 7.—*G. (Gonomyella) flaveola* p. 199, *mimetica* p. 198, *G. (Gonomyella) pulcherrima* p. 200, *sulphurelloides* p. 197, *tuckeri* p. 198, spp. n. S. Africa, ALEXANDER Ann. S. Afric. Mus. 18.—*G. (Gonomyella) thiosema*, *G. (Leiponeura) misera*, spp. n. Argentina p. 164, ALEXANDER Canad. Ent. 53.—*G. (Leiponeura) terraereginae* sp. n. Queensland p. 557, ALEXANDER Ann. Nat. Hist. 8.—*G. (L.) pulchripes* sp. n. Cameroons p. 316, ALEXANDER Ann. Nat. Hist. 7.—*G. (L.) mascarena* sp. n. Reunion p. 311, ALEXANDER Ann. Nat. Hist. 8.—*G. (Ptilostena) teranishii* sp. n. Japan p. 118, ALEXANDER Ann. Ent. Soc. Amer. 14.—*G. (P.) reticulata* sp. n. Gobi p. 305, ALEXANDER Bul. Muséum Paris 1921.

†*Gymnastes fasciatipennis* sp. n. Oligocene Isle of Wight, COCKERELL p. 456 f. 4 Ann. Nat. Hist. 7.

Gynoplistia claripennis Tasmania p. 560, *doddi* Queensland p. 561, spp. n., ALEXANDER Ann. Nat. Hist. 8.—*G. perjucunda* sp. n. New Guinea p. 137, RIEDEL Ann. Mus. Hungar. 18.

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Helius pallirostris, *dubius*, spp. n. Britain p. 206, EDWARDS Trans. ent. soc. London 1921.—*H. barbatus* sp. n. Formosa p. 103, EDWARDS Ann. Nat. Hist. 8.

†*Holorusia vasifera* sp. n. oligocene Isle of Wight, COCKERELL & HAINES p. 82 Entomol. 54.

Idioglochina subg. n. of *Dicranomyia* for *Rhipidia tusitala* Al., ALEXANDER p. 207 Canad. Ent. 53.

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Limnobiini continuation of revision of Netherlands species, pp. 54–118 pls. iii–x, DE MEIJERE Tijdschr. Ent. 64.

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Limnophilomyia subg. n. p. 208 for *L. lacteitaris* sp. n. S. Africa p. 209, ALEXANDER Ann. S. Afric. Mus. 18.

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†*Macromastix cladoptera* sp. n. oligocene Isle of Wight, COCKERELL & HAINES p. 111 Entomol. 54.

†*Megistocera gurnetensis* sp. n. oligocene Isle of Wight, COCKERELL p. 456 f. 3 Ann. Nat. Hist. 7.

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†*Mongoma pallescens* sp. n. oligocene Isle of Wight p. 460 f. 11, COCKERELL Ann. Nat. Hist. 7.

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Psiloconopa forcipata sp. n. Arctic Siberia p. 27, pl. ii fig. 39, LUNDSTRÖM Mém. Ac. Sci. Petrograd ser. 8. Phys.-Math. 29 No. 8 1918.

Ptychoptera, key to Ethiopian species, ALEXANDER p. 145 Insecutor Ins. Menstr. 9.—*P. camerounensis* sp. n. Cameroun p. 146, ALEXANDER T.c.—*P. daimio* p. 80, *subscutellaris* p. 81, spp. n., Japan, ALEXANDER T.c.

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†*Rhyphus hooleyi* sp. n. Oligocene Isle of Wight p. 467 f. 27, COCKERELL Ann. Nat. Hist. 7.

†*Styringomyia extensa* sp. n. Oligocene Isle of Wight, COCKERELL & HAINES p. 112 Entomol. 54.

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The genera of *Tabanidae*, with lists of the species and anatomy of ocelli and genitalia, SURCOUF Gen. Ins. fasc. 175 182 pp. 5 pls.; Supplement pp. 183-205.

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† *Gymnopleurinus bauckhorni* sp. n. Aquitanian Siebengebirge p. 206, fig., MEUNIER Zs. D. Geol. Ges. 67 1915.

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Stethopathusa gen. n. *Phoridae* type *corporali* sp. n. Sumatra pp. 95-98 fig., with key to *Phorinae*, SCHMITZ Bol. Soc. ent. Espana 4.

SYRPHIDAE.

The genitalia of the *Syrphidae*, their morphology and its taxonomic significance, pp. 169-214 11 pls., METCALF Ann. Ent. Soc. Amer. 14.

Syrphidae of the Government of Jakutsk, Siberia, STACKELBERG pp. 139-143 Rev. Russe Ent. 17.

The *Syrphidae* of New Zealand, 33 species, MILLER Tr. N. Z. Inst. 53 pp. 289-333 pls. xlvii-lli.

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The Palaearctic species of *Physocephala*, KRÖBER pp. 43-77 Arch. Natg. 80 A 10 1915.

The smaller genera of *Conopidae*, tables of genera and descriptions of species, KRÖBER pp. 68-89 Arch. Natg. 81 A 1 1915.

North and South American species of *Conops* tables and descriptions of species, KRÖBER pp. 121-160 Arch. Natg. 81 A 5 1915.

Conopidae de Belgique pp. 67-78 keys, TONNOIR Bull. soc. ent. Belg. 3.

Conops tables and descriptions of African species, KRÖBER pp. 35-68 Arch. Natg. 81 A 1 1915.—*C. maculifrons* p. 41, *rufomaculatus* p. 44, *tomentosus* p. 45, t. var. n. *immaculatus* p. 46, *elegans* var. n. *minutus* p. 48, *nigrifrons* p. 55, *longiventris* p. 57, spp. n. et varr. n. Palaearctic Region, KRÖBER Arch. Natg. 81 Abt. A. Heft 11.—*C. formosus* Mexico p. 124, *mexicanus* Mexico p. 128, *soror* Mexico p. 131, *striatifrons* Georgia p. 132, *pictifrons* Mexico p. 133, *pulchellus* S. Carolina p. 134, *fenestratus* Nebraska

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Dalmannia tables and descriptions of palaearctic and North American species, KRÖBER pp. 87–94 Arch. Natg. **80** A 10 1915.

Eucnops gen. n. p. 76, *bellus* sp. n. Cape Province p. 76, KRÖBER Arch. Natg. **81** A 1 1915.

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Neobrachyglossum gen. n. p. 79, *punctatum* sp. n. Asia Minor p. 80, KRÖBER Arch. Natg. **81** A 1 1915.

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Paraconops gen. n. p. 74, *longicornis* sp. n. N. Australia p. 74, KRÖBER Arch. Natg. **81** A 1 1915.

Paramyopa gen. n. p. 93, KRÖBER Arch. Natg. A **81** H 7 1915.

Physocephala table and descriptions of N. American species, KRÖBER pp. 99–110 Arch. Natg. **80** A 11 1915.—*P.* table and descriptions of African species KRÖBER pp. 81–99 T.c.—*P. constricta* Cape p. 85, *ugandae* Uganda p. 86, *abyssinica* Abyssinia p. 89, *simplex* Congo p. 90, *similis* Kibimbi p. 90, *spp. n.*, *interrupta* var. n. *flavifacies* Cape p. 93, *nigerrima* Belgian Congo p. 93, *rubicunda* S. Africa p. 94, *gracilia* Portuguese Congo p. 94, *longicornis* Dar-es-Salaam p. 95, *limbata* Algoa Bay p. 96, *madagascariensis* Madagascar p. 97, *spp. n.*, KRÖBER T.c.—*P. obscura* Amur p. 53, *curticornis* Hungary p. 54, *spp. n.*, *vittata* var. n. *abdominalis* Anatolia p. 57, *semirufa* Jaffa p. 58, *truncata* var. n. *maculigera* Egypt p. 71, *pseudomaculigera* Egypt p. 72, *syriaca* Egypt p. 72, *aureotomentosa* Amasia p. 74, *gracilis* Asia Minor p. 74, *albotomentosa* Transcaspia p. 77, *spp. n.*, KRÖBER Arch. Natg. **80** A.10 1915.—*P.* tables and descriptions of oriental, Australian and South American species, KRÖBER pp. 117–145 Arch. Natg. **81** A 4 1915.—

P. scutellata Burma p. 118, *sumatrensis* Sumatra p. 119, *assamensis* Assam p. 121, *ammophiliformis* Burma p. 122, *aterrima* Sikkim p. 122, *aureopygia* Sikkim p. 123, *minuta* Queensland p. 131, *pallipes* Herberton p. 132, *picipes* Rio Grande de Sul p. 134, *vespiformis* Paraguay p. 135, *brasiliensis* Bahia p. 136, *bicolor* Matto Grosso p. 136, *rufithorax* Paraguay p. 138, *bimaculata* Argentina p. 140, *soror* Argentina p. 143, *nervosa* Argentina p. 144, *unicolor* Paraguay p. 145, spp. n., KRÖBER T.c.

Pseudodacus gen. n. p. 81, *abdominalis* Kasenga p. 82, *apicalis* Erythrea p. 83, spp. n., KRÖBER Arch. Natg. 81 A.1 1915.

Sicus ferrugineus var. n. *abdominalis* Amurland p. 88, *vaginalis* sp. n. East India p. 88, KRÖBER Arch. Natg. 81 A.1 1915.

Tropidomyia aureifacies Brussa p. 71, *ornata* Belgian Congo p. 73, spp. n., KRÖBER Arch. Natg. 81 A.1 1915.

Zodion tables and descriptions of species, KRÖBER pp. 84-117 Arch. Natg. 81 A. 4 1915.—*Z. grande* Dobrudscha p. 87, *nigrifrons* California p. 97, *maculiventris* Mexico p. 108, *punctipennis* Chile p. 111, *dibaphus* Argentina p. 112, *analisis* Chile p. 113, *aureopygium* Paraguay p. 114, *peruvianum* Peru p. 115, spp. n., KRÖBER T.c.

OESTRIDAE.

The Ox-Warble or Ox-Bot Flies pp. 94-121 figs., MACDOUGALL Trans. Highl. Soc. Scot. (5) 31.

†*Berendtia* gen. n. (Oestridae) *baltica* sp. n. Oligocene of Baltic amber p. 133, TOWNSEND Insecutor Ins. Menstr. 9.

Hypoderma bovis on man p. 297, HENRIKSEN Ent. Medd. 13.—*H. bovis* variation of larva, PHIBBS pp. 53-57 figs. Irish Nat. 30.

MUSCIDAE CALYPTRATAE.

Figures and descriptions of the puparia of 100 muscoid flies, GREENE P. U. S. Mus. 60 No. 2405 pp. 1-39, 20 pls.

A tachinid parasite of the honey-bee pp. 196-200 3 text-figs., SKAIFE S. Afric. Journ. Sc. 17.

†*Acanthomyites* gen. n. *Muscidae* sens. lat., *aldrichi* sp. n. eocene Colorado p. 33 pl. viii f. 12, COCKERELL P. U. S. Mus. 59.

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Aethiopomyia gen. n. near *Alluaudinella* type *Mydaea gigas* Stein, MALLOCH p. 426 Ann. Nat. Hist. 7.

Alluaudinella fulvovittata sp. n. W. Africa p. 427, MALLOCH Ann. Nat. Hist. 7.

Ammomyia nom. em. *Anthomyidae* p. 163, STEIN Arch. Natg. 81 Abt. A. Heft 10.

Anthomyia allies, table of north-American, MALLOCH pp. 76-79 Canad. Ent. 53.

Anthomyidae, European, revision with keys, STEIN Arch. Natg. 81 Abt. A. Heft 10.

Antipodomyia gen. n. near *Limnophora bancrofti* sp. n. Queensland, MALLOCH p. 429 Ann. Nat. Hist. 7.

Ariciella rubripalpis Wulp = (*flavicornis* M.), MALLOCH p. 41 Ent. News: 32.

Atherigona pulvinata as an American insect, ALDRICH pp. 93-98 fig. Insecutor Ins. Menstr. 9.

Austenina gen. n. for *Glossina brevipalpis* Newstead p. 132, TOWNSEND Insecutor Ins. Menstr. 9.

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Bigotomyia gen. n. p. 173 for *Spilogaster trispila* Big., MALLOCH Ann. Nat. Hist. 7.

Brevicosta gen. n. near *Coenosia africana* sp. n. Nigeria p. 234, MALLOCH Ann. Nat. Hist. 8.

Camaronia barrosi sp. n. Chili p. 42, BRÈTHES Rev. Chil. Hist. Nat. 23.

Chortophila cannabina p. 169, *diluta* p. 170, *flavidipennis*, *flavisquama* p. 171, *hirtitibia* p. 172, *hyporutiformis* p. 173, *prominens* p. 174, *quadripilis*

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Coenosiniinae, the North American genera, MALLOCH pp. 106 and 107 Ent. News 32.

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Emmesomyia africana Nigeria, *negrolutea* Abyssinia, spp. n. p. 423, MALLOCH Ann. Nat. Hist. 7.

Enneastigma gen. n. *Anthomyidae* for *triplex* Lw. and *triseriatum* Stein p. 122, STEIN Arch. Natg. 81 Abt. A Heft 10.

Engyzops pecchiolii larval anatomy, taxonomy, THOMPSON pp. 27-31 figs. Bull. Soc. ent. France 1921.

Epalpus porteri sp. n. Chili p. 50, BRÉTHES Rev. Chil. Hist. Nat. 22.

Ernestia (*Meriania*) *negrocornea*, *E. frontalis*, *johnsoni*, *platycarina*, *fissicarina*, *incisa*, *bicarina*, *nigropalpis* p. 204, *longicarina*, *sulcocarina*, *arcuata* p. 205, spp. n. America bor., TOTHILL Canad. Ent. 53.

Eulimnophora, African species, MALLOCH p. 165 Ann. Nat. Hist. 7.—*E. marshalli* sp. n. Natal p. 428, MALLOCH Ann. Nat. Hist. 7.—*E.*, the North American, MALLOCH p. 12 Canad. Ent. 53.

Euproctimya gen. n. p. 157 (near *Podomyia*) *pyrrhaspis* sp. n. Punjab p. 158, VILLENEUVE Ann. Soc. ent. Belgique 61.

Euspilaria gen. n. near *Spilaria*, *fusciorufa* sp. n. Mt. Kenya, MALLOCH p. 228 Ann. Nat. Hist. 8.

Fannia atripes sp. n. Treptow p. 80, STEIN Arch. Natg. 81 Abt. A. Heft 10.—*F. canicularis* biology pp. 261-266, WILHELM Zs. angew. Ent. 5 1919.

Ganperdea nom. n. for *Pergandea* Aldrich p. 98 *Anthomyiidae*, ALDRICH Insector Ins. Menstr. 9.

†*Giebelia* gen. n. *Oestridae*, *ignota* sp. n. Tertiary p. 133, TOWNSEND Insector Ins. Menstr. 9.

Glossina, study of, in Portuguese East Africa, SWYNNERTON pp. 315-385 9 pls. map., Bull. Ent. Res. 11.

Graphomyia aurata sp. n. Nyasaland p. 161, MALLOCH Ann. Nat. Hist. 7.

Hammomyia, redescriptions and keys to species, pp. 305-311 figs., COLLIN Trans. ent. soc. London 1920 (1921).—*H. (Hylephila) unilineata*, in London, COPEMAN pp. 31-34 fig. Proc. Zool. Soc. London 1921.

Hebecnema affinis sp. n. Massachusetts p. 214, MALLOCH Canad. Ent. 53.

Helina, table of North American pp. 103-109, *hannai* sp. n. Behring Straits p. 109, MALLOCH Canad. Ent. 53.

Heliographa gen. n. p. 169 type *Limnophora intensa* Stein, MALLOCH Ann. Nat. Hist. 7.

Himantostomopsis gen. n. for *Himantostoma hungarica* Thalhhammer p. 133, TOWNSEND Insector Ins. Menstr. 9.

Hydrotaea pilitibia p. 73, *ringdahli* p. 74, spp. n., Jämtland, STEIN Arch. Natg. 81 Abt. A. Heft 10.

Hylemyia pilitibia p. 140, *profuga* p. 141, spp. n. Europe, STEIN Arch. Natg. 81 Abt. A. Heft 10.—*H. deceptiva* sp. n. New Zealand and Australia p. 428, MALLOCH Ann. Nat. Hist. 7.—*H. coarctata* biology pp. 325-326, MOLZ Zs. angew. Ent. 4 1918.—*H. coarctata* biology, KLEINE Zs. angew. Ent. 2 1918 pp. 360-389.

Hylephila brevifrons p. 159, *dorsalis* p. 160, spp. n., Europe, STEIN Arch. Natg. 81 Abt. A. Heft 10.—*H. personata* n. n. for *obtusata* Stein (nec. Zett.), re-descriptions and keys to species pp. 311–326 figs., COLLIN Trans. ent. soc. London 1920 (1921).

Idiohelina gen. n. near *Helina*, *nubeculosa* sp. n. New Zealand p. 238, MALLOCH Ann. Nat. Hist. 8.

Idiopygus gen. n. p. 229 near *Helina* type *Spilogaster hirtipes* Macq., *villipes*, *hirtiventris* p. 232, *trochanteratus* p. 233, spp. n., Africa, MALLOCH Ann. Nat. Hist. 8.

Leucocarcelia gen. n. near *Carcelia*, *argyrata* sp. n. Congo p. 30, VILLENEUVE Rev. zool. Afric. 9.

Leucomelina corvina, *deleta*, *minuscula*, *gerrula* of Wulp to *Limnophora*, MALLOCH p. 43 Ent. News 32.

Leptohylemyia coarctata observations on, pp. 99–105, PETHERIDGE J. Agric. Sci. 11.

Limnophora acrostichalis p. 88, *armipes* p. 89, *biseriata*, *glauca* p. 90, *latifrons* p. 91, *montana* p. 92, *obscuripennis*, *taeniata* p. 93, *uniseta* p. 94, *variabilis* p. 95, spp. n. Europe, *caliginosa* for *opacula* Strobl. p. 97, *pollinifrons* for *pacifica* Schin. p. 107, nn. n., STEIN Arch. Natg. 81 Abt. A. Heft 10.—*L. latilamellata* p. 165, *macfei* p. 166, *andersoni* p. 167, spp. n. Africa, MALLOCH Ann. Nat. Hist. 7.—*L. spreata* sp. n. Brazil p. 422, MALLOCH Ann. Nat. Hist. 8.—*L. porteri* sp. n. Chili p. 43, BRÈTHES Rev. Chil. Hist. Nat. 23.—*L. socia* Wulp to *Helina*, MALLOCH p. 42 Ent. News 32.—*L.*, the subgenera pp. 94–97, *L. (Spilonota) insularis* p. 167, *curata*, *mundula* p. 168, *marina* p. 171, *solitaria* p. 173, spp. n. Britain, table of British spp. pp. 265–267, COLLIN Ent. Mo. Mag. 57.

Lispocephala rubricornis omitted from p. 117, vide p. 224, STEIN Arch. Natg. 81 Abt. A. Heft. 10.

†*Lithexorista* gen. n., *scudderi* sp. n. Eocene of Wyoming p. 133, TOWNSEND Insecutor Ins. Menstr. 9.

†*Lithotachina* gen. n. for *Echinomyia antiqua* Heer. p. 133, TOWNSEND Insecutor Ins. Menstr. 9.

Melanochelia table of North American species, MALLOCH pp. 61–64 Canad. Ent. 53.

Muscaridae, to replace *Anthomyiidae*, MALLOCH p. 161 Ann. Nat. Hist. 7.

Mydaea, the North American, MALLOCH pp. 9 & 10 Canad. Ent. 53.—*M. latifrons*, *palpalis* p. 56, *riedeli* p. 57, spp. n., Europe, *tinctipennis* n. n. for *nigripennis* Schnabl. p. 69, STEIN Arch. Natg. 81 Abt. A. Heft 10.

Myiographa gen. n. near *Anthomyia*, *fascigera* sp. n. Siam, MALLOCH p. 169 Ann. Nat. Hist. 7.

Myiospila maculiventris sp. n. E. Africa p. 162, MALLOCH Ann. Nat. Hist. 7.—*M. flavicans* sp. n. Queensland p. 237, MALLOCH Ann. Nat. Hist. 8.

Neaveia gen. n. *Phaoninae*, *flavida* sp. n. Nyasaland, MALLOCH p. 427 Ann. Nat. Hist. 7.

Neomusca gen. n. p. 41 for *Mydaea obscura* Wulp, MALLOCH p. 41 Ent. News 32.

Neomuscina tripunctata Wulp=(*cavicola* T.), MALLOCH p. 41, Ent. News 32.

Newsteadina gen. n. for *Stomoxys fuscus* Walker p. 133, TOWNSEND Insecutor Ins. Menstr. 9.

†*Paleostomoxys* gen. n., *giebelii* sp. n. Tertiary p. 133, TOWNSEND Insecutor Ins. Menstr. 9.

†*Paleotachina* gen. n., *smithii* sp. n. Oligocene of Baltic amber p. 134, TOWNSEND Insecutor Ins. Menstr. 9.

†*Palexorista* gen. n. for *Tachina succini* Giebel p. 134, TOWNSEND Insecutor Ins. Menstr. 9.

Panzeria nielseni n. n. for *minor* Vill. VILLENEUVE p. 118 Bull. soc. ent. France 1921.—*P. rudis* biology of, pp. 118–148, PRELL Zs. angew. Ent. 2 1915.

Papuaia gen. n. p. 422 type *Mydaea rufescens* St., MALLOCH Ann. Nat. Hist. 8.

Parasetigena segregata biology of, pp. 58–118, PRELL Zs. angew. Ent. 2 1915.

Pegomyia atroapicata Kashmir p. 236, *magna* Assam p. 424, **spp. n.**, MALLOCH Ann. Nat. Hist. 8.—*P. tarda* St. to *Emmesomyia*, MALLOCH p. 422 Ann. Nat. Hist. 7.—*P. poeciloptera* **sp. n.** Argentina p. 430, MALLOCH T.c.—*P.* larval habitat, BONNAMOUR p. 195 Bull. Soc. ent. France 1921.—*P. eximia* **sp. n.** Brussa p. 128, STEIN Arch. Natg. 81 Abt. A. Heft 10.—*P. genupuncta* Stein bibliography, p. 133, HERING D. ent. Zs. 1921.

Phaonia canescens, *disjuncta* p. 24, *gracilis* p. 25, *jugorum* p. 26, *longicornis*, *setifemur* p. 27, **spp. n.**, Europe, STEIN Arch. Natg. 81 Abt. A. Heft 10.—*P. magnifica* **sp. n.** Natal p. 425, MALLOCH Ann. Nat. Hist. 7.—*P. peregrina* Natal, *parvula* Queensland, p. 414, *thomsoni* p. 415, *kashmirensis*, *flavomaculata* p. 416, Kashmir, **spp. n.**, MALLOCH Ann. Nat. Hist. 8.—*P. atronitens* **sp. n.** Kashmir p. 235, MALLOCH T.c.

Phorbia fuscipennis Wulp to *Phaonia*, MALLOCH p. 41 Ent. News 32.

Phorichaeta chilensis **sp. n.** Chili p. 42, BRÉTHES Rev. Chil. Hist. Nat. 23.

Phorocera meracanthae **sp. n.** U.S. p. 126, GREENE P. ent. Soc. Washington 23.

Phortica minor **sp. n.** Illinois and key to species, p. 312, MALLOCH Ent. News. 32.—*Ph. xyleboriphaga* **sp. n.** Ceylon p. 388, SENIOR-WHITE Spolia Zeylan. 11.

Phyllogaster, the North American, MALLOCH pp. 11 & 12 Canad. Ent. 53.

Poecilophania **gen. n.** for *Aricia flavithorax* Stein, MALLOCH p. 17 Ann. Nat. Hist. 7.

Pogonomyia fasciculata **sp. n.** Auvergne p. 46, STEIN Arch. Natg. 81 Abt. A. Heft 10.—*P. fumipennis* **sp. n.** Kashmir p. 235, MALLOCH Ann. Nat. Hist. 8.—*P. flavinervis* M. (= *flavinervis* St.), MALLOCH p. 120 Ent. News 32.

Pseudeuanta, notes, ALDRICH pp. 83–92 Insecutor Ins. Menstr. 9.—*Ps. coquilletti* Massachusetts p. 90, *rubripes* Florida p. 91, **spp. n.**, ALDRICH T.c.

Pseudocoenosia **gen. n.** Anthomyiidae, type *abnormis* **sp. n.** Berlin p. 113, STEIN Arch. Natg. 81 Abt. A. Heft 10.

Psilochaeta St., validity queried, MALLOCH p. 417 Ann. Nat. Hist. 8.

Pterocanthus **gen. n.** for *Aricia sundewalli* Zett., MALLOCH p. 418 Ann. Nat. Hist. 8.

Ptychoneuraruftarsis, larval anatomy, THOMPSON pp. 219–222 figs. Bull. Soc. ent. France 1921.

Pygophora, characters p. 168, MALLOCH Ann. Nat. Hist. 7.—*P. semilutea* **sp. n.** Ceylon p. 422, MALLOCH T.c.—*P. minuta* **sp. n.** Queensland p. 239, MALLOCH Ann. Nat. Hist. 8.

Omphrale (*Scenopinus*) *fenestralis* L., biology, SÉGUY pp. 60–66 Bul. Muséum Paris 1921.

Rhodesina **gen. n.** near *Pegomyia*, *ignobilis* **sp. n.** Rhodesia, MALLOCH p. 424 Ann. Nat. Hist. 7.

Rondania dimidiata, host, CHABAUT p. 116 Bull. Soc. ent. France 1921.

Rhynchomyia coelestis **sp. n.** Congo p. 31, VILLENEUVE Rev. zool. Afric. 9.

Rioxa magnifica **sp. n.** Ceylon p. 390, SENIOR-WHITE Spolia Zeylan. 11.

Sarcophaga carnaria, coupled with *Tabanus*, SURCOUF p. 46 Bull. Soc. ent. France 1921.—*S. elegantipes* **sp. n.** Congo p. 31, VILLENEUVE Rev. zool. Afric. 9.—*S. caridei* Bréthes, biology, figure, pp. 628–638, MASSINI Prim. Reun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919.

Smithomyia **gen. n.** p. 42 for *Mydaea concinna* Wulp., MALLOCH Ent. News 32.

Spilaria africana p. 227, *trinubilifera* p. 228, **spp. n.**, Africa, MALLOCH Ann. Nat. Hist. 8.—*S. chaetopygus* Cyprus p. 418, *punctifer* Zomba p. 419, **spp. n.**, MALLOCH T.c.

Spilogaster signatipennis, *parvula*, *copiosa*, Wulp, to *Helina*, MALLOCH p. 43 Ent. News 32.

Spilopteromyia **gen. n.** p. 422 type *Spilogaster apicata* St., MALLOCH Ann. Nat. Hist. 8.

Staurella zeylanica **sp. n.** Ceylon p. 392, SENIOR-WHITE Spolia Zeylan. 11.

Steinella **gen. n.** p. 171 near *Pseudophaonia*, *prima* **sp. n.** Uruguay p. 172, MALLOCH Ann. Nat. Hist. 7.

Stomoxys calcitrans, biology, WILHELM Monog. Z. angew. Ent. 2 1917.

Sturmia sociabilis sp. n. N. Amer. p. 125, GREENE P. ent. Soc. Washington 23.

Suiozstrus gen. n., *cooki* sp. n. Virginia p. 134, TOWNSEND Insecutor Ins. Menstr. 9.

Tachinidae, habits, economical importance, classification, BAER Zs. angew. Ent. 6 1920 pp. 185-246 7 1921 pp. 97-163 349-423.

Taeniomyia, characters, MALLOCH p. 424 Ann. Nat. Hist. 7.

Trichopticus furcatus sp. n. Europe p. 40, STEIN Arch. Natg. 81 Abt. A Heft 10.

Trupheopygus gen. n. near *Helina*, *testaceus* sp. n. Kenya p. 225, MALLOCH Ann. Nat. Hist. 8.

Uramyia notes, ALDRICH pp. 83-92, Insecutor Ins. Menstr. 9.

Villeneuveia gen. n. for *Lissoglossa taeniata* Villeneuve p. 134, TOWNSEND Insecutor Ins. Menstr. 9.

Winthemia fasciculata sp. n. Congo p. 29, VILLENEUVE Rev. zool. Afric. 9.

Xenocoenosia, the North American, MALLOCH p. 12 Canad. Ent. 53.

Xenomymia gen. n. near *Limnophora*, *atra* sp. n. E. Africa, MALLOCH p. 164 Ann. Nat. Hist. 7.

Xenotachina gen. n. *Tachinidae*, *pallida* sp. n. N. W. India, p. 420, MALLOCH Ann. Nat. Hist. 7.

Xenothoracochaeta gen. n. *Phaoninae*, *prima* sp. n. Colombia, MALLOCH p. 170 Ann. Nat. Hist. 7.

Xenosia gen. n. p. 421 for *Mydaea unguolata* Stein, MALLOCH Ann. Nat. Hist. 7.

Zenilia roseanae, anatomy, larva, THOMPSON pp. 127-129 3 pls. P. ent. Soc. Washington 23.

MUSCIDAE ACALYPTRATAE.

Proposed new classification of *Helomyzidae*, GARRETT pp. 120-121 Insecutor Ins. Menstr. 9.

Chloropidae of Belgium, list, pp. 131-136, TONNOIR Bull. ent. soc. Belg. 3.

Gymnopiniae, revision of, pp. 325-343, CRESSON Trans. Amer. ent. soc. 47.

Acantholeria gen. n. p. 130 *Helomyzidae* (genotype *cineraria* Loew), *oedemus*, *abnormalis* spp. n., p. 131 British Columbia p. 131, GARRETT Insecutor Ins. Menstr. 9.

Acatochaeta gen. n. (near *Myennis*) *africana* sp. n. W. Africa p. 212, ENDERLEIN Zool. Anz. 52.

Amoebaleria gen. n. p. 124 *Helomyzidae*, *scutellata* p. 125, *gigas* p. 126, spp. n., British Columbia, GARRETT Insecutor Ins. Menstr. 9.

Aschabadicola gen. n. near *Meromyza*, *longicornis* sp. n. Aschabad p. 80, FREY Notulae Ent. 1.

Athyroglossa, key to N. Amer. species, p. 332, CRESSON Trans. Amer. ent. soc. 47.—*A. barrosi* sp. n. Chili p. 44, BRÈTHES Rev. Chil. Hist. Nat. 23.

Barbastoma gen. n. *Helomyzidae*, *barbatus* sp. n. British Columbia p. 123, GARRETT Insecutor Ins. Menstr. 9.

Celyphus obtectus p. 293 pl. 1, *scutatus* p. 295 pl. li, metamorphoses, SEN Rep. ent. meeting Pusa 4.

Cetema neglecta sp. n. Belgium p. 131, TONNOIR Bull. ent. soc. Belg. 3.

Dacus oleae var. n. *asiatica* India p. 425, SILVESTRI Mem. Acc. Lincei 25 1916.

Drosophila parenti, *macularis*, p. 157, *fungicola*, *setosa*, p. 158, spp. n., France, VILLENEUVE Ann. Soc. ent. Belgique 61.—*D. rubrostriata*, parasitic habits, pp. 217-219 BONNAMOUR Bull. Soc. ent. France, 1921.

Drosophila experiments: MAC DOWELL 1146; ZELENY 1961; DETLEFSON & ROBERTS 441; MULLER 1273; ADOLPH 8; MAVOR 1200; STURTEVANT 1718.

Epiplatea dohaniani sp. n. Texas p. 58, JOHNSON Psyche 28.

Eupterocalla gen. n. (type *E. plumitarsis* Hend) p. 213, ENDERLEIN Zool. Anz. 52.

†*Helomyza bauckhorni* sp. n. Aquitanian, Siebengebirge, p. 208 fig. MEUNIER Zs. D. Geol. Ges. 67 1915.

Herina nigrina var. n. *approximata* p. 161, VILLENEUVE Ann. Soc. ent. Belgique 61.

Hippelates jacobsi sp. n. Luxembourg p. 134, TONNOIR Bull. soc. ent. Belg. 3.

Hyadina porteri sp. n. Chili p. 43, BRÉTHES Rev. Chil. Hist. Nat. 23.

Lathrostigma gen. n. p. 214 *limbatofasciatum* sp. n. Peru p. 215, ENDERLEIN Zool. Anz. 52.

Leria aldrichi British Columbia p. 121, *tristissima* Newfoundland p. 122, spp. n., GARRETT Insecutor Ins. Menstr. 9.—*L. (Blepharoptera) maritima* sp. n. France p. 158, VILLENEUVE Ann. Soc. ent. Belgique 61.

Leucopis nigricornis, parasitic on *Pulvinaria betulae*, p. 314, SCHUMACHER Zs. angew Ent. 5 1919.

Limosina australis sp. n. Chili p. 44, BRÉTHES Rev. Chil. Hist. Nat. 23.

Microdrosophila gen. n. genotype *Drosophila quadrata* Sturt. p. 312, MALLOCH Ent. News 32.

Morpholeria gen. n. *Helomyzidae*, *melaneura* sp. n. British Columbia p. 127, GARRETT Insecutor Ins. Menstr. 9.

Neoleucophenga nom. n. for *Paraleucophenga* Oldenberg, p. 93, OLDENBERG Arch. Natg. 80 A. 9 1915.

Ochtheroidea melanderi p. 339, *granulosa* p. 341, spp. n. and key to N. Amer. species p. 335, CRESSON Trans. Amer. ent. soc. 47.

Oecotha canadensis sp. n. British Columbia p. 129, GARRETT Insecutor Ins. Menstr. 9.

Ophthalmoptera innotata sp. n. Colombia p. 213, ENDERLEIN Zool. Anz. 52.

Oscinella frit, natural history, CUNLIFFE pp. 105-133 Ann. appl. Biol. 8.

Paragorgopsis amoena p. 215, *excellens* p. 216, *fasciipennis* p. 217, spp. n. S. Amer., ENDERLEIN Zool. Anz. 52.

Palloptera, table of American species, JOHNSON pp. 20-21 figs. Psyche 28.—*P. subarcuata* Maine p. 21 fig., *albertensis* Canada p. 22 fig., spp. n., JOHNSON T. c.

Perissoza gen. n. p. 217, *scripta* sp. n. Brazil p. 218, ENDERLEIN Zool. Anz. 52.

Phytomyza spp. as leafminers, p. 135, HERING D. ent. Zs. 1921.

Polphorhina gen. n. (type *P. flavitarsis* Meig.) p. 231 ENDERLEIN Zool. Anz. 52.

Postleria gen. n. p. 124 *Helomyzidae*, *fuscolinea* sp. n. British Columbia p. 124, DYAR Insecutor Ins. Menstr. 9.

Pseudoleria gen. n. p. 128 *Helomyzidae*, *pectinerata* sp. n. British Columbia p. 129, DYAR Insecutor Ins. Menstr. 9.

Pterocerina garleppi sp. n. Peru p. 214, ENDERLEIN Zool. Anz. 52.

Rioxena termitoxena, larva, puparium, p. 216 figs., HILL Proc. Linn. Soc. N. S. Wales 46.

Sapromyza drahamensis sp. n. Tunis p. 160, VILLENEUVE Ann. Soc. ent. Belgique 61.

Scaptomyza disticha nom. nov. for *S. graminum* Fallén, and revision, pp. 57-69, DUDA Jahresh. Ver. Ins. Breslau 13.

Scatophaga stercoraria, food-habits, AUSTEN pp. 118-123 Ann. Nat. Hist. 8.

†*Scholastes foordi* sp. n. British amber, COCKERELL p. 30 Entomol. 54.

Schoederella n. n. for *Schroederia* Enderlein (nec Schmidt) type *S. incrs* Meig., p. 231, ENDERLEIN Zool. Anz. 52.

Sphaerocera falcozi sp. n. France p. 140, DUDA Bull. Soc. ent. France 1921.

Spilographa conversa sp. n. Chili p. 43, BRÉTHES Rev. Chil. Hist. Nat. 23.

Stegana barretti sp. n. Mexico p. 59, JOHNSON Psyche 28.

Stegana and *Phortica* generically distinct, p. 311, MALLOCH Ent. News. 32.

Tephritis dubautiae p. 477, *swezeyi* p. 478, spp. n., Hawaii, BRYAN Proc. Hawai. ent. Soc. 4.

Terpnomyia citrivitta sp. n. Uruguay p. 218, ENDERLEIN Zool. Anz. 52.

Trigonometopus zeylanicus sp. n. Ceylon p. 393, SENIOR-WHITE Spolia Zeylan. 11.

Xanthocrona tripustulata sp. n. Paraguay p. 212, ENDERLEIN Zool. Anz. 52.

PUPIPARA.

Braula coeca, habits, TIMM pp. 1-6 Ber. Westpreuss. B.-Z. Ver. 39 1917 No. 3.—*B. caeca*, a dipterous parasite of the honey-bee pp. 41-48, SKAIFE Trans. Roy. Soc. S. Afric. 10.

Lynchia caprina sp. n. Palestine p. 122, AUSTEN Bull. ent. Res. 12.

Nycteribia (Listropodia) sarasini sp. n. New Caledonia p. 237, FALCOZ Bull. Soc. ent. France 1921.

Nycteribosca surcoufi, rouxi, spp. n. New Caledonia p. 237, FALCOZ Bull. Soc. ent. France 1921.

APHANIPTERA.

Siphonaptera of Juan Fernandez, p. 48, ROTHSCHILD Nat. hist. Juan Fernandez 3 pt. 1.

Die Larven der Flöhe als Träger von Krankheitserregern, HARMS pp. 122-130 Verh. Deutsch. Gesell. angew. Ent. 1919.

Archaeopsylla polymorphus sp. n. on *Erinaceus algirus*, Tunisia, p. 171, WEISS Bull. soc. hist. nat. Alger. 11 1920.

Ceratophyllus haesidatoris subsp. n. *desideratus* Tunis p. 24, WEISS Arch. Inst. Past. Tunis 11 1919.

Ctenocephalus canis, Ct. felis and *Ceratophyllus fasciatus*, biological observations on, pp. 303-308, CRAIGHEAD Ent. News 32.

Chiastopsylla godfreyi Waterst. female desc. p. 414, WATERSTON Trans. ent. soc. London 1920 1921.

Hystriechopsylla mammoth sp. n. California p. 25, *schefferi* correction p. 26, CHAPIN P. ent. Soc. Washington 23.

HEMIPTERA.

Hemiptera of Michigan and Minnesota, HUSSEY pp. 8-15 figs. Psyche 28.

Ant-like *Hemiptera*, POPPIUS & BERGROTH pp. 31-88 2 pls. Ann. Mus. Hungar. 18.

Heteroptera.

The *Hemiptera-Heteroptera* of the Crimea, KIRITSHENKO pp. 87-91 Rev. Russe Ent. 16 1916.

The *Hemiptera-Heteroptera* of the Government of Jaroslavl (Central European Russia), KIRITSHENKO pp. 23-37 Rev. Russe Ent. 16 1916.

The *Hemiptera-Heteroptera* of the Government of Nizhnij-Novgorod, KIRITSHENKO pp. 77-86 Rev. Russe Ent. 16 1916.

Motschulsky's types of *Hemiptera Heteroptera* pp. 96-109, BERGROTH Rev. Russe Ent. 17.

Hemiptera-Heteroptera of the Caucasus, KIRITSHENKO Mém. Mus. Caucase Ser. A, No. 6 1918.

PENTATOMIDAE.

Acanthosominae, studies, pp. 6-15 1 pl., TEYROVSKÝ Časopis 17.

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Agaeus tonkinensis sp. n. p. 5, DISTANT Entomol. 54.

Allecbola gen. n. for *Tropicorypha denticollis* p. 6, BERGROTH Notulae Ent. 1.

Antestia lineaticollis, life-history and egg parasites, DRY pp. 191-201 Bull. ent. Res. 12.

Aspongopus laosanus sp. n. p. 167, DISTANT Entomol. 54.

Cyclopelta rugosa sp. n. Indo-China p. 167, DISTANT Entomol. 54.

Dalpada laosana sp. n. Laos p. 4, DISTANT Entomol. 54.

†*Dinidorites* gen. n. p. 34, *margiformis* sp. n. eocene Colorado p. 35 pl. viii f. 10, COCKERELL P. U. S. Mus. 59.

Diplorhinus coloratus sp. n. Tonkin p. 168, DISTANT Entomol. 54.

Epagathus gen. n. p. 68, *chapana* sp. n. p. 69, DISTANT Entomol. 54.

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Gonopsis salvazana sp. n. Indo-China p. 168, DISTANT Entomol. 54.

Halyomorpha magnifica sp. n. E. Africa p. 6, BERGROTH Notulae Ent 1.

Halys persa sp. n. Persia p. 1, BERGROTH Arch. Natg. 83 A. 2 1919.—*H. rugosus* sp. n. Laos p. 5, DISTANT Entomol. 54.

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Mattiplus splendidus sp. n. Mekong p. 166, DISTANT Entomol. 54.

Megymenum mekongum sp. n. Indo-China p. 167, DISTANT Entomol. 54.

Menida laosana, *raja*, *vitalisana*, p. 43, *salvazana* p. 48, spp. n., Indo-China, DISTANT Entomol. 54.—*M. insignita* sp. n. Persia p. 2, BERGROTH Arch. Natg. 83 A. 2 1919.

Neojurtina gen. n. near *Jurtina*, *typica* sp. n. Tonkin, DISTANT p. 68 Entomol. 54.

Neoniphe gen. n. near *Niphe*, *armata* sp. n. Tonkin, DISTANT p. 40 Entom. 54.

Neosalica=(*Mesolea* Br.) *nigrovittata* sp. n. Tonkin, DISTANT p. 164 Entomol. 54.

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Ontantestia distinct from *Antestia*, BERGROTH p. 98 Rev. Russe Ent. 17.

Ouscha gen. n. p. 4 near *Apodiphus*, *viridissima* sp. n. Tonkin p. 5, DISTANT Entomol. 54.

Palomena angulata in Algeria p. 154, BERGEVIN Bul. soc. hist. nat. Algiers 12.

Patanocnema maculata sp. n. Belgian Congo p. 39, LEHMANN Arch. Natg. 87 Abt. A. Heft 6.

Paterculus aberrans sp. n. Luang Prabang p. 69, DISTANT Entomol. 54.

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Tolumnia latipes = (*ferruginescens* Bredd.), DISTANT p. 41 Entomol. 54.

Trigonosoma (*Selenodera*) *philalyssum* sp. n. Crimea p. 90, KIRITSHIENKO Rev. Russe Ent. 16 1916.

Udonga gen. n. near *Dabessus*, *spini-dens* sp. n. Mekong, DISTANT p. 69 Entomol. 54.

Urothyreus gen. n. type *Odontotarsus horvathianus* Sch. p. 146, HORVÁTH Ann. Mus. Hungar. 18.

Vilpianus galii var. n. *algeriensis* N. Africa p. 102, BERGEVIN Bull. soc. hist. nat. Alger. 11 1920.

Xiengia gen. n. near *Origanus*, *elongata* sp. n. Indo-China, p. 166 DISTANT Entomol. 54.

COREIDAE.

The likeness of the larvae of *Alydinae* to ants, BERGROTH pp. 65–68 Ann. Mus. Hungar. 18.

Trachelium spectabile sp. n. Peru p. 68, BERGROTH Ann. Mus. Hungar. 18.

LYGAEIDAE, COLOBATHRISTIDAE.

Colobathristidae, unknown larva from Peru resembling an ant, BERGROTH pp. 70–72 Ann. Mus. Hungar. 18.

Emblethis brachynotus sp. n. Krasnojarsk p. 48, LINDBERG Notulae Ent. 1.

Henestaris oschanini sp. n. Manchuria, BERGROTH p. 3 Arch. Natg. 83 A. 2 1919.

Ligyrocoris latimarginatus pp. 102
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Colorado, *spp. n.*, BARBER J. New York
Ent. Soc. 29.

†*Lygaeites amabilis* p. 542 f. 2, *acourti*
p. 543 f. 3, *spp. n.*, Oligocene Isle of
Wight, COCKERELL Ann. Nat. Hist. 8.

Lygaeospilus subgen. n. for part of
Lygaeus, *pusio* St. &c. p. 65, BARBER P.
ent. Soc. Washington 23.

Lygaeus rubricatus sp. n. Arizona
p. 67, BARBER P. ent. Soc. Washington
23.

Mimobius gen. n. near *Eucosmetus*,
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BERGROTH Ann. Mus. Hungar. 18.

Ninus insignis, synonymy p. 166 =
(*Ossifraga ceylanica* Dist.), *substylatus*
sp. n. Borneo p. 167, BERGROTH Ann.
Soc. ent. Belgique 61.

Pachygrontha antennata, amplification
of original description, *nigriventris*
distinct from *antennata*, BERGROTH p.
4 Arch. Natg. 83 A. 2 1919.

Poecantius velox p. 79, *pernix* p. 80,
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p. 82 Senegal, *spp. n.*, BERGROTH Ann.
Mus. Hungar. 18.

Rhiobia = (*Domiduca* Dist.), BER-
GROTH p. 66 Ann. Soc. ent. Belgique
61.

Rhyarochromus arenicolor sp. n.
Turkestan p. 5, BERGROTH Arch. Natg.
83 A 2 1919.

Syzygites gen. n. near *Polychisme*,
reflexa sp. n. Chile, BERGROTH p. 165
Ann. Soc. ent. Belgique 61.

Vertemannus sp. with ant-like larva,
BERGROTH p. 73 Ann. Mus. Hungar. 18.

Xenydrium gen. n. near *Daerlac*,
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PYRRHOCORIDAE.

Arhapse cicindeloides Walk. pl. ii f. 5
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BERGROTH Ann. Mus. Hungar. 18.

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TINGITIDAE.

Notes on American *Tingidae*, DRAKE
pp. 49-54 pl. i. Florida Entom. 1921.

†*Celantia? seposita* sp. n. Oligocene
Isle of Wight p. 542, COCKERELL Ann.
Nat. Hist. 8.

Corythuca smithi sp. n. Colombia
p. 50 pl. i fig. a, DRAKE Florida Entom.
1921.—*C. mclfreshi* Mexico p. 50 pl. i
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spp. n., *drakei* synonymous with *salicata*
p. 53, *salicis* and *mollicula* not specifi-
cally separable p. 53, *spinulosa* synony-
mous with *associata* p. 54, DRAKE
Florida Entom. 1921.

Elasmognathus hewitti removed to
Diplogomphus, BERGROTH p. 104 Rev.
Russe Ent. 17.

Leptophya mcaleei sp. n. Florida p. 49,
DRAKE Florida Entom. 1921.

Pachycysta championi sp. n. Bolivia
p. 344, DRAKE Bul. Muséum Paris 1921.

Stephanitis rhododendri, in Germany,
p. 434, STEYER Zs. Angew. Ent. 2 1915.

Teleonemia marginata removed to
Physatochila, *elegantula* removed to
Compseula, BERGROTH p. 105 Rev.
Russe Ent. 17.—*T. vanduzeei* sp. n.
Florida, Jamaica, DRAKE Florida
Buggist Sept. 1919.

Tingis pyri, natural history, DURANTE
pp. 282-290 Boll. Lab. Portici 11.

ARADIDAE.

Aradus betulae, in Scotland, HAR-
WOOD & CHAMPION pp. 227 & 228 Ent.
Mo. Mag. 57.—*A. inlectus*, *implanatus*,
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p. 17, N. America, keys and monograph
of genus pp. 1-106 7 plates, PARSHLEY
Trans. Amer. Ent. Soc. 47.

Otenoneurus hochstetteri, life-history,
MYERS p. 235 pl. xlv Tr. N. Z. Inst.
53.

Mezira tremulae, occurrence in Swe-
den, LUNDBLAD p. 105 Fauna och Flora
16.

GERRIDAE.

Gerris alacris sp. n. Michigan p. 11 figs., HUSSEY Psyche 28.

Hydrometra stagnorum, larva, pp. 53-59; pp. 93-106 pl. i figs. 1 2, LUNDBLAD Ent. Tidskr. 42.

Miscegenation in *Gerridae*, PARSHLEY pp. 42-44 Ann. Soc. ent. Belgique 61.

Trepobatopsis trux sp. n. Colorado p. 274, TORRE-BUENO Ent. News 32.

REDUVIIDAE, NABIDAE.

Gastrogryus gen. n. near *Apocaucus* p. 69, *monophleboides* sp. n. p. 70, BERGROTH Notulac Ent. 1.

Micrymenus gen. n. type *seclusus* sp. n. Juan Fernandez pp. 43-45 fig., BERGROTH Ent. Tidskr. 42.

Nabis lativentris, myrmecophilous habits, DONISTHORPE pp. 136-138 Ent. Mo. Mag. 57.—*N. lativentris*, natural history, BUTLER pp. 57-61 & 79-81 T.c.

Opisthoplatys pallens, *pallidinervis* p. 67, Borneo, *pellitus* p. 68 Java, spp. n., BERGROTH Notulae Ent. 1.

Pangeranga Dist. = *Opisthoplatys* p. 67, BERGROTH Notulae Ent. 1.

Reduviolus subcoleopratus, ant-like larva, BERGROTH pp. 35-37 Ann. Mus. Hungar. 18.

Sympelus gen. n. p. 111 near *Psanomium*, *curculiunculus* sp. n. India p. 112, BERGROTH Ent. Mo. Mag. 57.

Togo praetor sp. n. Japan p. 4, BERGROTH Arch. Natg. 83 A. 2 1919.

Tribelocephala lanaria sp. n. Guinea p. 69, BERGROTH Notulae Ent. 1.

CIMICIDAE.

A new symbiotic organ of the bed bug pp. 570-574, BUCHNER Biol. Centralbl. 41.

Cimex lectularius, biology, HASE, Monog. Z. angew. Ent. 1 1917.

MIRIDAE.

Acegima gen. n. p. 47 near *Myrmecoris*, *albofasciata* sp. n. Bolivia p. 48 pl. i f. 5, POPPIUS Ann. Mus. Hungar. 18.

Allommatus triangulifer Argentina p. 38 pl. i f. 4, *minor* Peru p. 39, spp. n., POPPIUS Ann. Mus. Hungar. 18.

Bakeriola nom. n. for *Bakeriella* Popp. p. 70. BERGROTH Ann. Soc. Ent. Belg. 60 1920.

Blanchardiella gen. n. p. 60 type *Globiceps fascicularis* Sign., *unicolor* p. 61, *unifasciata* p. 62, *bifasciata* p. 63, spp. n., Chile, POPPIUS Ann. Mus. Hungar. 18.

Dolichostenia gen. n. p. 59 for *Phytocoris trigonalis* Sp., POPPIUS Ann. Mus. Hungar. 18.

Eucerella gen. n. p. 49 near *Systellognotus*, *hirtipes* sp. n. Bolivia p. 50, POPPIUS Ann. Mus. Hungar. 18.

Fiebrigiella gen. n. p. 44 near *Zosipus*, *humeralis* Paraguay pl. i f. 2, *silvestrii* Brazil, spp. n., p. 45, POPPIUS Ann. Mus. Hungar. 18.

Haarupia gen. n. p. 40, *spinosa* p. 41, *pallida* p. 42, spp. n., Argentina, POPPIUS Ann. Mus. Hungar. 18.

Haarupiola gen. n. p. 42, *allommatoides* sp. n. Ceara p. 43, POPPIUS Ann. Mus. Hungar. 18.

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Laemocoridae gen. n. p. 50 near *Laemocoris*, *quadrimaculata* sp. n. Argentina p. 51, POPPIUS Ann. Mus. Hungar. 18.

Lepidotaenia gen. n. p. 63 near *Dolichotaenia*, *bergrothi* p. 64, *metallescens* p. 65, spp. n., Bolivia, POPPIUS Ann. Mus. Hungar. 18.

Lepidoxenetes gen. n. p. 33 near *Xenetes*, *unicolor* sp. n. Argentina p. 34, POPPIUS Ann. Mus. Hungar. 18.

Leucophoroptera gen. n. p. 56 near *Pilophorus quadrimaculata* pl. ii f. 2, *fasciatipennis*, spp. n., Sydney p. 57, POPPIUS Ann. Mus. Hungar. 18.

Lygus obscuricornis sp. n. Brazil p. 83, POPPIUS Ent. Mitt. 10.

Myrmecoridae gen. n. near *Myrmecoris* p. 58, *gracillima* sp. n. Sydney p. 59 pl. ii f. 3, POPPIUS Ann. Mus. Hungar. 18.

Psallus aethiops var. n. *flavicolor* p. 50, LINDBERG Notulæ Ent. 1.

Ruspoliella gen. n. p. 82, type *bicolor* sp. n. Ital. Somali p. 83, POPPIUS Ent. Mitt. 10.

Sericophanes niger p. 52 pl. i f. 7, *obscuricornis* p. 53, spp. n., Argentina, POPPIUS Ann. Mus. Hungar. 18.

Xenetopsis gen. n. p. 37 near *Xenetus*, *pyrwanus* sp. n. Callanga p. 38, POPPIUS Ann. Mus. Hungar. 18.

Xenetus falloui p. 35, *brunneus* p. 36, spp. n., Brazil, POPPIUS Ann. Mus. Hungar. 18.

Zeletocoris gen. n. p. 46, *pallidus* sp. n. Amer. mer. p. 47 pl. i f. 4, POPPIUS Ann. Mus. Hungar. 18.

HYDROCORISAE.

Micronecta lucina synonym of *albifrons* p. 109, BERGROTH Rev. Russe Ent. 17.

Homoptera.

The phylogeny of *Homoptera*, MUIR pp. 116-119 Psyche 28.

New galls of *Coccidae* and *Aphidae*, WELLS pp. 35-45 pl. Psyche 28.

CICADIDAE.

The mouth parts, based on a study of *Cicada*, SNODGRASS P. ent. Soc. Washington 23 pp. 1-15 2 pls.

Melampsalta, revision of the New Zealand species pp. 238-250 pls. xlv and xlvii, *cauta* p. 242 pl. xlv f. 8, *fuliginosa* pl. xlv f. 2, *indistincta* figs. 7 and 8 p. 245, *leptomera* p. 246 f. 1, *nigra* p. 247 pl. xlv figs. 1 and 2, spp. n., New Zealand, MYERS Tr. N.Z. Inst. 53.

Okanagana nigriviridis p. 9 pl. ii fig. 2, *simulata* p. 12 pl. ii fig. 4, spp. n., California, DAVIS J. New York Ent. Soc. 29.—*O. rimosa* in Nova Scotia p. 15, JOHNSON Psyche 28.

Platypedia laticapitata p. 14 pl. ii fig. 5, California, *latipennis* p. 54 pl. v fig. 5 Colorado, spp. n., DAVIS J. New York Ent. Soc. 29.

Tettigades porteri sp. n. Chili p. 10, BRÉTHES Rev. Chil. Hist. Nat. 24.

Tibicen septendecim, mouth parts, SNODGRASS pp. 1-15 2 pls. P. ent. Soc. (n-17041 j) q

Washington 23.—*T. septendecim*, 1919, McATEE pp. 211-213 P. ent. Soc. Washington 23.—*T. apache* sp. n. Arizona p. 3, DAVIS J. New York Ent. Soc. 29.

FULGORIDAE.

Dates of publication of *Homoptera* of Burmeister's genera insectorum, METCALF p. 237 Ent. News 32; and of Duponchel's review of Spinola, p. 238.

Akilas fasciatus Dist. to *Gelastoccephalus*, MUIR p. 486 Proc. Hawai. ent. Soc. 4.

Asarcopus gen. n. *palmarum* sp. n. Egypt, HORVATH p. 179 Bull. Soc. hist. nat. Alger. 12.

Austroloma baumanensis, *wilkesi*, spp. n. Samoa p. 568, MUIR P. Hawai. ent. Soc. 4.

Capelopterum maculifrons p. 581, *fuscifrons* p. 582, spp. n. Samoa, MUIR P. Hawai. ent. Soc. 4.

Colpocara gen. n. for *Pochazioides conspersus*, Mel. p. 26, BERGROTH Ark. Zool. 12 No. 17 1920.

Cumbisoga gen. n. near *Columbiana*, *campbelli* sp. n. India, MUIR p. 483 figs. Proc. Hawai. ent. Soc. 4.

Delphacidae, systematic value of male genitalia, pp. 135-140, GIFFARD Ann. Ent. Soc. Amer. 14.—*Delphacidae* and symbiotic fungi, MUIR pp. 59-60 Psyche 28.

†*Delphax veterum* sp. n. eocene Colorado p. 34 pl. viii f. 3, COCKERELL P. U. S. Mus. 59.

Dictyophara=(*Dictyophora*), METCALF p. 238 Ent. News 32.—*D. lallemandi* p. 97 figs., *truncata* p. 99 figs., spp. n. Algeria, BERGEVIN Bull. Soc. ent. France 1921.

Eurynomeus granulatus p. 571, *niger* p. 572, spp. n. Samoa, MUIR P. Hawai. ent. Soc. 4.

†*Hammapteryx tripunctata* sp. n. eocene Colorado p. 455 pl. 98 f. 3, COCKERELL & SANDHOUSE P. U. S. Mus. 59.

Hysteropterum royeri sp. n. Atlas p. 241 figs., BERGEVIN Bull. Soc. ent. France 1921.—*H. normandi* sp. n. Tunisia p. 87 fig. 1 p. 88 fig. 2 p. 89 figs.

3-6, *BERGEVIN* Bull. soc. hist. nat. Alger. 11 1920.—*H. normandi* var. *siccanum* p. 18, *rubrinerve* p. 19, var. n., *BERGEVIN* Bull. soc. hist. nat. Alger. 12.

Iburnia dubautiae p. 510, *nesopele* p. 511, *anamau* p. 512, *aku* p. 513, *bockmeriae* p. 514, *geranii* p. 515, *sulcata* p. 516, *neorailardiae*, *gigantea* p. 517, *olympica* p. 520, spp. n. Hawaiian islds. figs. genitalia pl. viii, *MUIR* P. Hawai. ent. Soc. 4.

Issidius rotundiceps, *peyerimhoffi*, forms, *BERGEVIN* p. 31 Bull. Soc. ent. France 1921.

Kelisia sporobolicola var. n. *innaculata*, *MUIR* p. 509 P. Hawai. ent. Soc. 4.

Leirioessa lamononi sp. n. Samoa p. 567, *MUIR* P. Hawai. ent. Soc. 4.

†*Lithopsis dubiosa* sp. n. eocene Colorado p. 456 pl. xcvi figs. 4 and 5, *COCKERELL* & *SANDHOUSE* P. U. S. Mus. 59.

Mecroplis langlei sp. n. Samoa p. 570, *MUIR* P. Hawai. ent. Soc. 4.

Myndus roggewei sp. n. Samoa p. 566, *MUIR* P. Hawai. ent. Soc. 4.

Neolollius gen. n. near *Lollius*, *viridis* sp. n. Samoa, *MUIR* p. 584 P. Hawai. ent. Soc. 4.

Nesodryas (*Nesothoe*) *haa* sp. n. Hawai p. 509, *MUIR* P. Hawai. ent. Soc. 4.

Phaciocephalus tutuilae sp. n. Samoa p. 576, *MUIR* P. Hawai. ent. Soc. 4.

Plestia kellersi p. 577, *anomala* p. 578, spp. n. Samoa, *MUIR* P. Hawai. ent. Soc. 4.

†*Poekilloptera* ? *melanospila* sp. n. Oligocene Isle of Wight p. 475 f. 42, *COCKERELL* Ann. Nat. Hist. 7.

Sardia campbelli sp. n. India p. 485, *MUIR* Proc. Hawai. ent. Soc. 4.

Stiroma ribauti sp. n. France p. 222, figs., *LALLEMAND* Bull. Soc. ent. France 1921.

Tettigometra tafratensis sp. n. Morocco p. 102 fig. 1, *BERGEVIN* Bull. soc. hist. nat. Alger. 11 1920.

†*Thaumastocladus* gen. n. p. 456, *simplex* sp. n. eocene Wyoming p. 457 pl. xcvi f. 2, *COCKERELL* & *SANDHOUSE* P. U. S. Mus. 59.

Tropidocephala butleri p. 481, *indica* p. 482, spp. n. India, *MUIR* Proc. Hawai. ent. Soc. 4.

Ugyops kellersi p. 572, *samoensis* p. 573, *bougainvillei* p. 574, *brevipennis* p. 575, spp. n. Samoa, *MUIR* P. Hawai. ent. Soc. 4.

Urvillea dumonti sp. n. Samoa p. 569, *MUIR* P. Hawai. ent. Soc. 4.

Vanua poyeri, *angusta*, spp. n. Samoa p. 579, *MUIR* P. Hawai. ent. Soc. 4.

MEMBRACIDAE.

Key to *Membracidae* of Washington, U.S.A., *MCATEE* Proc. Biol. Soc. Washington 34 pp. 123-134.

Clonauchenia gen. n. p. 679, *mirabilis* sp. n. p. 680 Mindanao, *FUNKHOUSER* Philip. J. Sci. 18.

Cryptaspidia pilosa sp. n. Basilan p. 686, *FUNKHOUSER* Philip. J. Sci. 18.

Emphusis globosus sp. n. Mindanao p. 683, *FUNKHOUSER* Philip. J. Sci. 18.

Gargara genistae, in U.S., metamorphosis figs., *WEISS* & *DICKERSON* pp. 108-112 Ent. News 32.

Leptobelus elevatus sp. n. Palawan p. 685, *FUNKHOUSER* Philip. J. Sci. 18.

Membracis bucktoni n. n. for *Cryptonotus militaris* B., *FUNKHOUSER* p. 151 Ent. News 32.

Mesocentrus gen. n. *pyramidatus* sp. n. Mindanao p. 681, *FUNKHOUSER* Philip. J. Sci. 18.

Pyrgonota noditurrus sp. n. Mindanao p. 684, *FUNKHOUSER* Philip. J. Sci. 18.

CERCOPIDAE.

Abidama ornata sp. n. Himalayas p. 100, *MELICHAR* Wien. Ent. Zeit. 38.

Cosmoscarta niteara pl. v f. 2 p. 38, *AYYAR* Rep. ent. meeting Pusa 4.

Monecphora bicornis in New England, *MORSE* pp. 27-28 Psyche 28.

JASSIDAE.

Bothrognathus nom. n. for *Aliturus* Dist. p. 29, *BERGROTH* Ark. Zool. 12 No. 17 1920.

Cicadella gothica, not *hieroglyphica*, in Massachusetts, *gothica* var. n. *atra* Massachusetts p. 130, BARBER Psyche 28.

Deltocephalus dorsalis Motsch. pl. v f. 1 p. 37, AYYAR Rep. ent. meeting Pusa 4.

Empoasca minuenda sp. n. p. 23, *moznettei*, *clavigerana* var. n. p. 24, BALL Proc. Biol. Soc. Washington 34. — *E. mali*, natural history, HARTZELL pp. 62–68 J. econ. Ent. 14.

Eutettix tenella, life-history, SEVERIN pp. 433–436 J. econ. Ent. 14.

Goniagnathus algericus sp. n. Algeria p. 77 figs. 1–3, BERGEVIN Bull. soc. nat. hist. Alger. 11 1920.

Goniozygum nom. n. for *Goniagnathus* Fieb. p. 29, BERGROTH Ark. Zool. 12 No. 17 1920.

Gypona octolineata Say, life history &c., BRITAIN Proc. Ent. Soc. Nova Scotia 1920 pp. 12–22.

Titia nom. n. for *Titia* Stål p. 29, BERGROTH Ark. Zool. 12 No. 17 1920.

Typhlocyba australis, notes, pp. 473–474, figs., MYERS Proc. Linn. Soc. N. S. Wales 46.

PSYLLIDAE.

Philippine *Psyllidae*, details of early stages, figs. &c. pp. 259–288, UICHANCO Philip. J. Sci. 18.

Una nueva Hemipteroecidia Argentina p. 383 figs., LIZER Prim. Reun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919.

Aphalara Först genotype (*A. exilis* W.-M.) fixed p. 117, ENDERLEIN Zool. Anz. 52.

Asphagidella gen. n. (type *A. buxi* L.) p. 120, ENDERLEIN Zool. Anz. 52.

Asphagis gen. n. (type *A. fusca* Zett) p. 120, ENDERLEIN Zool. Anz. 52.

Craspedolepta gen. n. (type *C. artemisiae* Först) p. 118, ENDERLEIN Zool. Anz. 52.

Dasymastix gen. n. (type *D. gigantea* Crawf.) p. 122, ENDERLEIN Zool. Anz. 52.

Diraphia Ill. re-described p. 118, ENDERLEIN Zool. Anz. 52. — *D.*, nomenclature p. 183, HORVATH D. ent. Zs. 1921.

Eustigmia gen. n. (type *E. minor* Crawf.) p. 119, ENDERLEIN Zool. Anz. 52.

Gyroza n.n. for *Heteroneura* Crawf. p. 122, ENDERLEIN Zool. Anz. 52.

Haplaphalara gen. n. genotype *H. dahli* sp. n. Philippine Is. p. 260, UICHANCO Philip. J. Sci. 18.

Labobrachia gen. n. (type *L. pacifica* Crawf.) p. 119, ENDERLEIN Zool. Anz. 52.

Leptynoptera sulfurea var. n. *rubrocincta* Philippine Is. p. 271, UICHANCO Philip. J. Sci. 18.

Livia Latr. nomenclature p. 182, HORVATH D. ent. Zs. 1921.

†*Livilla hooleyi* sp. n. Oligocene Isle of Wight p. 476 f. 44, COCKERELL Ann. Nat. Hist. 7.

Mastigimas gen. n. *peruanus* sp. n. Peru p. 121 fig., ENDERLEIN Zool. Anz. 52.

Megatrioza banksi p. 281, *pallida* p. 283, spp. n., Philippine Is., UICHANCO Philip. J. Sci. 18.

Matapsausia gen. n. (type *M. bakeri* Crawf.) p. 120, ENDERLEIN Zool. Anz. 52.

Pachypsylla celtidis-gemma, life-history, WEISS pp. 19–21 Canad. Ent. 53.

Pelmatobrachia gen. n. (type *P. spondiasae* Crawf.) p. 115, ENDERLEIN Zool. Anz. 52.

Platystigma gen. n. *lemniscata* sp. n. N. Africa p. 116 fig., ENDERLEIN Zool. Anz. 52.

Pseudophacopteron gen. n. (type *P. tuberculata* Crawf.) p. 116, ENDERLEIN Zool. Anz. 52.

Sympauropsylla gen. n. (type *S. triozyptera* Crawf.) p. 116, ENDERLEIN Zool. Anz. 52.

Syntomoza gen. n. (type *S. magna* Kuw.) p. 117, ENDERLEIN Zool. Anz. 52.

Triozia bussei sp. n. Kamerun pp. 418–423, ZACHER Zs. angew. Ent. 3 1916.

Xanioptera gen. n. (type *X. pilosa* Oshan) p. 117, ENDERLEIN Zool. Anz. 52.

APHIDAE.

Aphididae notes pp. 181-191, 281-286, SCHUMACHER Zool. Anz. 53.

Aphididae orthography, BAKER pp. 101-103 P. ent. Soc. Washington 23.

Notes on the synonymy of Walker's and of Buckton's Lachnids at the British Museum, SWAIN Ent. News 32 pp. 209-213 and 225-228.

Reproduction in the *Aphidae*, UICHANCO pp. 95-109 Psyche 28.

Movement of the tarsi in Aphids, UICHANCO pp. 63-68 pl. Psyche 28.

Anuraphis centauriella sp. n. Scotland p. 230, THEOBALD Entomol. 54.—*A. roseus* sp. n. Am. bor. = (*malifoliae* olim.), BAKER p. 95 Canad. Ent. 53.

Aphis rumicis multiplication on different plants, DAVIDSON Ann. Appl. Biol. 8 pp. 51-63.—*A. rumicis* the forms, life-history, DAVIDSON pp. 81-89 figs., Bull. ent. Res. 12.—*A. rumicis* biological studies, appearance of winged and sexual forms pp. 304-322 Id. Sci. Proc. R. Dublin Soc. 16 1921.—*A. adjuvans* and *polygoni* Walk. to *Aspidaphis* p. 125, *frequens* W. to *Bradyctius* p. 127, *bufo* W. to *Lachnus eriophori* W. to *Rhopalosiphum* p. 127, LAING Ent. Mo. Mag. 57.—†*A. gurnetensis* sp. n. Oligocene Isle of Wight p. 476 f. 43, COCKERELL Ann. Nat. Hist. 7.

Apaloneura lentisci Passerini, biology pp. 241-292, ZAVATTARI Acta Zool. Stockholm 2.

Atheroides hirtellus Hal., LAING p. 119 Ent. Mo. Mag. 57.

Hamamelistes agrifoliae sp. n. California p. 289, FERRIS Ent. News 32.

Lachnus laricifex in Quebec pp. 193-195, CHAPUIS Nat. Canad. 47.

Myzus ribis production of winged forms, HAVILAND pp. 101-104 Ann. Appl. Biol. 8.

Pemphigus baicalensis sp. n. Trans-baicalia, CHOLODKOVSKY Bull. Station rég. prot. plantes Petrograd 2.

Phylloxera of the vine, biology pp. 1-54 2 pls., GRANDORI Natura 4 1913.

Pterocomma jacksoni Scotland p. 232, *fraxini* England p. 233, spp. n., THEOBALD Entomol. 54.

Saltusaphis insessa, familiaris figs. pp. 123-125, LAING Ent. Mo. Mag. 57.

Schizoneura passerinii account of, CHOLODKOVSKY pp. 1-4 figs. 1-3 Bull. Station rég. prot. plantes Petrograd 2.

Sipha schoutedeni, littoralis W., LAING p. 119 Ent. Mo. Mag. 57.

Termitaphis annandalei sp. n. Barkuda I. p. 71 figs. 1-3, SILVESTRI Rec. Ind. Mus. 22.

Thripsaphis cyperi p. 120 fig., LAING Ent. Mo. Mag. 57.—*Th. cyperi* W., THEOBALD p. 231 Entomol. 54.

ALEURODIDAE.

Asterochiton vaporariorum, reactions to light, LLOYD pp. 355, 359 Bull. Ent. Res. 12.

COCCIDAE.

Coccidae, The, pp. i-vi. 1-502, MACGILLIVRAY Urbana Ill. 1921.

List of Indian *Coccidae*, AYYAR pp. 336-362 Rep. ent. meeting Pusa 4.

Aclerda berlesii life-history, LA FACE pp. 235-249 figs. Boll. Lab. Portici 11.

Affirmaspis gen. n. *Diaspidinae* pp. 393 and 448 type *socotranus* Lindgr., MACGILLIVRAY The Coccidae 1921.

Africaspis gen. n. *Diaspidinae* pp. 307 and 338 type *chionaspiformis* Newst. Africa, MACGILLIVRAY T.c.

Albastaspis gen. n. *Diaspidinae* pp. 275 and 290 type *nivea* Mask. Australia, MACGILLIVRAY T.c.

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Ambigaspis gen. n. *Diaspidinae* pp. 394 and 456 type *lycii* Brain S. Africa, MACGILLIVRAY The Coccidae 1921.

Americoccus gen. n. *Kuwaniinae* p. 78 type *fasciculensis* Herbert California, MACGILLIVRAY T.c.

Ametrochaspis gen. n. *Diaspidinae* p. 311 and 359 type *flava* Green Ceylon, MACGILLIVRAY T.c.

Andaspis gen. n. *Diaspidinae* pp. 275 and 292 type *hawaiiensis* Mask., MACGILLIVRAY T.c.

Anomalococcus multiporti sp. n. Singapore p. 641 figs., MORRISON Philip. J. Sci. 18.

Aonidia obtusa sp. n. Seychelles p. 126 figs., GREEN & LAING Bull. ent. Res. 12.

Aspidioides gen. n. Diaspidinae pp. 387 and 406 type *corokiae* Mask. New Zealand, MACGILLIVRAY The Coccidae 1921.

Assymetraspis gen. n. Diaspidinae pp. 311 and 360 type *distorta* Newst. Transvaal, MACGILLIVRAY T.c.

Augulaspis gen. n. Diaspidinae pp. 309 and 353 type *nudata* Newst. Germ. E. Afr., MACGILLIVRAY T.c.

Bakeraspis gen. n. Diaspidinae pp. 395 and 459 type *schizostachyi* Ckll. and Rob. Philippines, MACGILLIVRAY T.c.

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Cephalaspis gen. n. Diaspidinae pp. 274 and 286 type *coccoli* Green Ceylon, MACGILLIVRAY T.c.

Ceroplastes floridensis var. n. *japonicus*, GREEN p. 258 fig. Ent. Mo. Mag. 57.
—*C. argentinus* sp. n. Parana p. 79, BRÈTHES Bull. Soc. ent. France 1921.
—*C. grandis hempeli* ssp. n. Argentina p. 381 figs. 1 and 2, LIZER Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919.

Chemnaspidiotus gen. n. Diaspidinae pp. 391 and 439 type *liquidambaris* Kotins, U.S.A., MACGILLIVRAY The Coccidae 1921.

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Cupidaspis gen. n. Diaspidinae pp. 312 and 363 type *cupressi* Colem. California, MACGILLIVRAY The Coccidae 1921.

Dentachionaspis gen. n. Diaspidinae pp. 310 and 358 type *capensis* Newst., MACGILLIVRAY T.c.

Dentaspis gen. n. Diaspidinae pp. 312 and 362 type *substriata* Newst. Uganda, MACGILLIVRAY T.c.

Diaspis flacourtiae p. 128 fig., GREEN & LAING Bull. ent. Res. 12.—*D. pentagona* Targ. control by *Prospaltella berlesii* How. pp. 645-649, GIROLA Prim. Réun. Nac. Soc. Arg. Cienc. Nat. 1919.

Douglariella n.n. for *Douglasia* p. 474, MACGILLIVRAY The Coccidae 1921.

Douglasia gen. n. *Ortheziinae* pp. 110 and 111 type *maenariensis* Douglas Montecristo I., MACGILLIVRAY T.c.

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Eriopeltis festucae, spines, figs. p. 197, GREEN Ent. Mo. Mag. 57.

Essigaspis gen. n. *Diaspidinae* pp. 306 and 324 type *agrifoliae* Essig, California, MACGILLIVRAY The Coccidae 1921.

Eulecanium coryli and its parasites, SILVESTRI Ann. Scuola Portici 2. Ser. 15 Paper No. 24 1919.

Fernaldanna gen. n. *Diaspidinae* pp. 276 and 296 type *indentata* Green Australia, MACGILLIVRAY The Coccidae 1921.

Ferrisaspis gen. n. *Diaspidinae* pp. 388 and 422 type *convillae* Ferris Arizona, MACGILLIVRAY T.c.

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Hendaspidiotus gen. n. *Diaspidinae* pp. 391 and 440 type *ulmi* Johns U.S.A., MACGILLIVRAY T.c.

Icerya purchasi Mask. in N. Africa p. 122, PEYERIMHOFF Bull. soc. hist. nat. Alger., 11 1920.

Inchoaspis gen. n. *Diaspidinae* pp. 310 and 359 type *amaniensis* Lindgr. S.W. Africa, MACGILLIVRAY The Coccidae 1921.

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†*Mitchelloneura* gen. n. PROSBOLIDAE p. 414, *permiana* sp. n. Newcastle N.S.W. p. 416 pl. xxxv f. 1 text-fig. 1, TILLYARD Proc. Linn. Soc. N. S. Wales 46.

†PALAEONTINIDAE related to *Mesogereon* pp. 281-283, TILLYARD Proc. Linn. Soc. N. S. Wales 46.

ANOPLURA.

Anoplura, host list of species, pp. 153-160, FAHRENHOLZ Zs. angew. Ent. 6 1919.

Zur frage des Lebendiggebärens der Kleiderlaus pp. 377-379, HASE Centralbl. Bakt. Jena Ab. 1 85.

Tracheation of *Anoplura*, FREUND pp. 142-148 Centralbl. Bakt. Jena Ab. 1 84 1920.

Echinophthirius horridus Olfers application of name, p. 22, FAHRENHOLZ Jahresber. nathist. Ges. Hannover 62-68 1919 Zool.

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Phthirpedicinus micropilosus p. 4 textfigg. 3, 4, FAHRENHOLZ Arch. Natg. 81 Abt. A Heft 11.

Ratemia gen. n. type *R. squamulatus* Neum. p. 31, FAHRENHOLZ Arch. Natg. 81 Abt. A Heft 11.

THYSANOPTERA.

Thysanoptera of the Government of Petrograd, IOHN Faunae Petropolitanae Catalogus 2 No. 1.

An unidentified blood-sucking *Thysanopteron*, WILLIAMS p. 163 Entomol. 54; cf. GREEN T.c. p. 198.

Thysanoptera and Fungi, p. 170. WEISS & WEST Proc. Biol. Soc. Washington 34.

Thysanopteren an Tee, KARNY pp. 66-85 Treubia Buitenzorg 2.

Thysanoptera on *Hevea*, KARNY pp. 37-65 Treubia Buitenzorg 2.

Chilean *Thysanoptera*, PORTER pp. 55-73 Rev. Chil. Hist. Nat. 23.

Netherlands *Thysanoptera* pp. 313-314, ECKE Ent. Ber. Helder 5.

Records of Sardinian *Thysanoptera* KRAUSSE p. 121 Arch. Natg. 81 A. 2 1915.

Acallurothrips gen. n. near *Cryptothrips*, *proturus* pl. v figs. 3 & 4, p. 269, *macrurus* p. 270 figs. 1 & 2, spp. n. Seychelles, BAGNALL Ann. Nat. Hist. 7.

Acrothrips gen. n., *serez* sp. n. Australia p. 43, KARNY Časopis 17.

Adiaphorothrips elephas, *dracon*, *camelus* spp. n. Australia p. 43, KARNY Časopis 17.—*A. brevis* sp. n. Seychelles p. 276 pl. iv f. 6, BAGNALL Ann. Nat. Hist. 7.

Agnostochthona curvidens sp. n. Java p. 40, KARNY Treubia Buitenzorg 2.

Anaphothrips theiperdus p. 69, *theivorus* p. 72, *theifolii* p. 75 spp. n. Java, KARNY Treubia Buitenzorg 2.

Aspidothrips gen. n. p. 38, *platygaster* sp. n. Australia p. 39, KARNY Časopis 17.

Bactridothrips serraticornis sp. n. Ceylon p. 397, BAGNALL Ann. Nat. Hist. 8.

Bactrothrips = (*Krinothrips* B.), BAGNALL p. 396 Ann. Nat. Hist. 8.

Bagnalliella gen. n. type *Cephalothrips yuccae* Hinds, *cestosa* sp. n. Australia p. 41, KARNY Časopis 17.

Brachyurothrips gen. n. near *Panchaetothrips anomalus* sp. n. Seychelles pl. iv figs. 3-5, BAGNALL p. 265 Ann. Nat. Hist. 7.

Bregmatothrips theifloris sp. n. Java p. 66, KARNY Treubia Buitenzorg 2.

Coenurothrips gen. n. near *Acallurothrips brevicollis*, p. 271 pl. v figs. 5 & 6, *validus* p. 272 pl. vi figs. 4 & 5, spp. n. Seychelles, BAGNALL Ann. Nat. Hist. 7.—*C. affinis* sp. n. Ceylon p. 361, BAGNALL. T.c.—*C. minor* sp. n. Rodrigues p. 387, BAGNALL. T.c.

Compsothrips bicolor (Karny i.l.) sp. n. Paraguay p. 213, PRIESNER D. ent. Zs. 1921.

Cryptothrips mjobergi, *sjostedti* spp. n. Australia p. 42, KARNY Časopis 17.—*C. seychellensis* p. 274 pl. vii figs 1 & 3, *difficilis* p. 276 figs. 2 & 4, spp. n. Seychelles, BAGNALL Ann. Nat. Hist. 7.—*C. japonicus* sp. n. p. 355, BAGNALL. T.c.—*C. citriceps* sp. n. Paraguay p. 208, PRIESNER D. ent. Zs. 1921.—*C. cingulatus* sp. n. Austria p. 121, PRIESNER, Wien. Ent. Zeit. 38.

Dendrothrips karnyi sp. n. Dalmatia p. 115, PRIESNER Wien. Ent. Zeit. 38.

Desmothrips bagnalli sp. n. Australia p. 36, KARNY Časopis 17.—*D. seychellensis* p. 280, *rex* p. 281 pl. vii figs. 5 & 6, *mahensis* p. 283 f. 9, *hystrix* p. 284 f. 8, spp. n. Seychelles, BAGNALL Ann. Nat. Hist. 7.—*D. crassiceps* India, *breviceps* E. Africa, spp. n. BAGNALL Ann. Nat. Hist. 8.

Dicaiothrips breviceps (Karny i.l.) sp. n. Paraguay p. 219, PRIESNER D. ent. Zs. 1921.

Dichaetella subgen. n. of *Dendrothrips* p. 116, PRIESNER Wien. Ent. Zeit. 38.

Dolichothrips jeanneli E. Africa p. 358, *varipes* India p. 359, spp. n., BAGNALL Ann. Nat. Hist. 7.

Ecacanthothrips, table, BAGNALL pp. 290 & 291 Ann. Nat. Hist. 7.

Elaphrothrips (Idolothrips) antennalis sp. n. Japan p. 398, BAGNALL Ann. Nat. Hist. 8.

Empresmothrips gen. n. p. 40, *combustipes* sp. n. Australia p. 41, KARNY Časopis 17.

Euchaetothrips ingens sp. n. Bohemia p. 119, PRIESNER Wien. Ent. Zeit. 38.

Frankliniella trybomi sp. n. Australia p. 36, KARNY Časopis 17.—*F. febrigi* p. 187, *varnoniae* p. 190 spp. n., *minuta* var. n. *paraguayensis* p. 189, Paraguay, PRIESNER D. ent. Zs. 1921.

Gigantothrips tibialis sp. n. Ceylon p. 364, BAGNALL Ann. Nat. Hist. 7.

Glenothrips gen. n. genotype *Cryptothrips biuncinatus* Karny and D.v.L. p. 19, PRIESNER Treubia 2.

Gynaikothrips obscuripes p. 362, *willcocksii* p. 363, spp. n. Egypt, *obscuripes* gall pl. ix, BAGNALL Ann. Nat. Hist. 7.—*G. scotti* sp. n. Seychelles p. 273 pl. vii figs. 10 & 11, BAGNALL. T.c.

Haplothrips clavipes, braccatus spp. n. Australia p. 41, KARNY Časopis 17.—*H. mahensis* pl. vi figs. 12 & 13 p. 267, *silhouettensis* p. 268 f. 11, spp. n. Seychelles, BAGNALL Ann. Nat. Hist. 7.—*H. inquinatus* sp. n. Java p. 78, KARNY Treubia, Buitenzorg 2.—*H. inquilinus* p. 4 Java, *schultzei* p. 17 Africa spp. n. *ceylonicus* var. n. *vernoniae* p. 4, *trifolii* var. n. *angusticornis* p. 12 re-descriptions and keys to European and Indonesian forms, PRIESNER Treubia 2.—*H.*, The Australian, KARNY pp. 21-36 Treubia Buitenzorg 2.

Horistothrips ischnosoma, calvus, impennis, clavipilus, acripilus, xanthocnemis, spp. n., Australia p. 39, KARNY Časopis 17.

Isoneurothrips setifer sp. n. Australia p. 38, KARNY Časopis 17.

Liothrips priscus, reuteri, spp. n., Australia p. 40, KARNY Časopis 17.—*L. seticollis* var. n. *obscuricornis* Paraguay p. 197, PRIESNER D. ent. Zs. 1921.—*L. nigricornis* p. 278 pl. v figs.

7-9, *intrepidus* p. 279, **spp. n.**, Seychelles, BAGNALL Ann. Nat. Hist. 7.—*L. thomasseti* **sp. n.** Rodrigues p. 288, BAGNALL T.C.—*L. kingi* **sp. n.** E. Africa p. 357, BAGNALL T.C.

Machatothrips heveae **sp. n.** Java p. 61, KARNY Treubia Buitenzorg 2.

Megathrips honoris **sp. n.** Japan p. 395, BAGNALL Ann. Nat. Hist. 8.

Merothrips williamsi **sp. n.** Paraguay p. 191, PRIESNER D. ent. Zs. 1921.

Mesothrips indicus Dehra Dun p. 365, *lewisi* Japan p. 366, **spp. n.**, BAGNALL Ann. Nat. Hist. 7.

Monochaetella **subgen. n.** of *Dendrothrips* p. 116, PRIESNER Wien. Ent. Zeit. 38.

Neoheegeria fumipennis, citripes, spp. n., India p. 360, BAGNALL Ann. Nat. Hist. 7.

Nesothrips speciosissimus **sp. n.** Australia p. 42, KARNY Časopis 17.

Odontothrips biuncus **sp. n.** Petrograd p. 7, IONN Faunae Petropolitanae Catalogus 2 No. 1.

Ophthalmothripidae, suggested new family p. 215, PRIESNER D. ent. Zs. 1921.

Ophthalmothrips **gen. n.**, *argus* **sp. n.** Australia p. 38, KARNY Časopis 17.—*O. hemipteroides* **sp. n.** Paraguay p. 215, PRIESNER D. ent. Zs. 1921.

Panurothrips caudatus to *Gigantothrips*, BAGNALL p. 365 Ann. Nat. Hist. 7.

Phloeothrips similis to *Mesothrips*, BAGNALL p. 367 Ann. Nat. Hist. 7.

Phrasterothrips **gen. n.** *conducans* **sp. n.** Paraguay p. 210, PRIESNER D. ent. Zs. 1921.

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Plectrothrips parvus **sp. n.** Paraguay p. 203, PRIESNER D. ent. Zs. 1921.

Pygmaeothrips **gen. n.**, *columniceps* **sp. n.** Australia p. 40, KARNY Časopis 17.

Rhaebothrips lativentris f. *macroptera* form. n. Australia p. 42, KARNY Časopis 17.

Symphiothrips (?) *longicornis* **sp. n.** Paraguay p. 200, PRIESNER D. ent. Zs. 1921.

Taeniothrips dianthi **sp. n.** Dalmatia p. 116, PRIESNER Wien. Ent. Zeit. 38.

Titanothrips **gen. n.**, *portentosus* **sp. n.** Australia p. 44, KARNY Časopis 17.

Trichaplothrips **gen. n.** p. 17, *sus* **sp. n.** Java p. 18, PRIESNER Treubia 2.

Trichothrips erinaceus **sp. n.** Australia p. 41, KARNY Časopis 17.—*T. (pini) = ulmi* p. 109, (*primulae*) = *picipes* p. 110, AHLBERG Ent. Tidskr. 42.—*T. vitreus* **sp. n.** Paraguay p. 204, PRIESNER D. ent. Zs. 1921.

Trybomia intermedia var. n. *febrigi* Paraguay p. 195, PRIESNER D. ent. Zs. 1921.

Trypactothrips **gen. n.** type *Dinurothrips rutherfordi* B., *breviselis* **sp. n.** Seychelles pl. iv fig. 2b, BAGNALL p. 264 Ann. Nat. Hist. 7.

PSOCOPTERA.

Psocidae, webs of Paraguayan p. 135, STRAND Arch. Nat. 81 Abt. A Heft 12.

Amphigerontia numiana **sp. n.** Tonkin, NAVÁS p. 27 fig. Mem. Acc. Nuovi Lincei 5 1920.—*A. limpida* p. 63 fig., *tincta* p. 63, **spp. n.**, Argentina, NAVÁS An. Soc. Cient. Argent. 90 1920.

Caecilius cabrerai **sp. n.** Canaries p. 93, NAVÁS Bol. Soc. ent. España 4.

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Psocus discalis p. 90 fig. 1, *lacroixi* p. 91 fig. 2, **spp. n.**, Tonkin, NAVÁS Bol. Soc. ent. España 4.—† *P. acourti* **sp. n.** Oligocene Isle of Wight p. 480 f. 50, COCKERELL Ann. Nat. Hist. 7.

Ptiloneura quinaria **sp. n.** Bolivia p. 92, NAVÁS Bol. Soc. ent. España 4.

MALLOPHAGA.

Observations on *Mallophaga* of *Gypaetus barbatus* L. pp. 222-229, GALLI-VALERIO Arch. für Thierheilk. Zürich 63.

Lipeurus variabilis, notes on pp. 295-296 fig., KAUPF J. comp. Path. Ther. 33.

Mallophaga of Terra Nova Expedition pp. 269-270, WATERSTON Brit. Antarct. Exp. 1910 Zoology 3.

spp. n., FULLER S. Afric. J. Nat. Hist. 3.—*H. (Macrohodotermes)* see below.

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Macrotermes (subgen.) Holmgren 1912 given full generic rank, FULLER p. 17 S. Afric. J. Nat. Hist. 3.

Parrhinotermes australicus = (*P. queenslandicus*) p. 449, HILL Proc. Linn. Soc. N. S. Wales 46.

Planocryptotermes gen. n. p. 41, type *P. nocens* sp. n. Philippine Is. p. 43, pl. ii figs. 3, 4, pls. v, vi, LIGHT Philippine J. Sci. 19.

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Schedorhinotermes putorius subsp. n. *australis* South Africa p. 51, FULLER, S. Afric. J. Nat. Hist. 3.

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South African Termites, FULLER pp. 14-52 S. Afric. J. Nat. Hist. 3.

Notes on Philippine Termites, classification and distribution pp. 243-257, LIGHT Philippine J. Sci. 18.

Koenig's paper of 1779 translated and discussed, FLETCHER Rep. ent. meeting Pusa 4 pp. 312-333 pls. lii-lv.

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PLECOPTERA.

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The wing-venation of the Leptopteridae, TILLYARD pp. 270-274 *Trans. R. Soc. S. Aust.* 45.

Acroneuria mongolica sp. n. Sachalin p. 323, Klapálek *Ann. Soc. ent. Belgique* 61.

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Ecoptura gen. n. p. 60, type *xanthenes* Newm., Klapálek *Ann. Soc. ent. Belgique* 61.

Eustheniidae, revision, keys, pp. 221-236 figs., TILLYARD *Proc. Linn. Soc. N. S. Wales* 46.

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Ephemeridae of Barkuda island p. 397, DOVER Rec. Ind. Mus. 22.

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Adenophlebia ornata sp. n. p. 13 Kamerun, ULMER Arch. Naturg. 81 Abt. A Hft. 7 1915.

Baetis intercalaris p. 118, *flavistriga* p. 120, spp. n. Canada, McDUNNOUGH Canad. Ent. 53.

Bruchella gen. n. near *Baetis*, *nigra* sp. n. Argentina p. 56, fig., NAVÁS An. Soc. Cient. Argent. 90 1920.

Caenis albata sp. n. Argentina, NAVÁS p. 12 Mem. Acc. Nuovi Lincei 5 1920.—*C. ludiera* sp. n. Argentina, NAVÁS p. 54 An. Soc. Cient. Argent. 90 1920.

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Campsurus paraguayus sp. n. Paraguay, NAVÁS p. 53, fig. T.c.—*C. zottai* sp. n. Argentina, NAVÁS p. 11, Mem. Acc. Nuovi Lincei 5 1920.

Centroptilum nitidum, p. 17, Belg. Congo, *sudanense*, p. 18, Sudan, spp. n. ULMER Arch. Natg. A 81 H. 7 1915.

Ecdyurus venosus, *lateralis*, nymphal stages, resumé in English, pp. 59-62, 4 figs., KOMÁREK Časopis 17.

Ephemera duporti sp. n. Tonkin p. 216, LESTAGE Ann. Soc. ent. Belgique 61.

Euthyplocia guntheri sp. n. Brazil, NAVÁS p. 414, fig. Rev. Mus. São Paulo 12 1920.—*E. minima* sp. n. p. 8, Togo and Belg. Congo, ULMER Arch. Naturg. 81 Abt. A Hft. 7 1915.

Leptohyphodes gen. n. for *Potamanthus* ? *inanis* Pict. p. 244, fig. 9, ULMER Arch. Natg. 87 Abt. A Heft 6.

Palingenia mesopotamica sp. n. Amara p. 177 pl. ii, MORTON Entomol. 54.

Polyplocia gen. n. p. 212 near *Euthyplocia*, *vitatizi* sp. n. Tonkin p. 215, LESTAGE Ann. Soc. ent. Belgique 61.

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ODONATA.

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MARTIN pp. 225-226 Bul. Muséum
Paris 1921.

Records of Sardinian *Paraneuroptera*,
KRAUSSE p. 122 Arch. Natg. 81 A. 2
1915.

The Odonata of Finland, VALLE Act.
Soc. Fauna et Fl. Fenn. 47 No. 3 1920.

The *Paraneuroptera* of Rostov on
Don, BARTENEV pp. 319-327 Rev.
Russe Ent. 16 1917.

The *Paraneuroptera* of the govern-
ment of Tiflis, BARTENEV pp. 343-345.
T.c.

Odonata of the Government of Stav-
ropol, BARTENEV pp. 144-151 Rev.
Russe Ent. 17.

Odonata of Jakutsk, Siberia, BAR-
TENEV pp. 129-134. T.c.

Migrations of dragonflies, especially
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1918-19.

Paraneuroptera of N. Persia, BAR-
TENEV pp. 38-45 Rev. Russe Ent. 16
1916.

Dragonflies of Mahableshwar, FRASER
pp. 540-544 J. Bombay Nat. Hist. Soc.
27.

Indian Dragonflies, catalogue, FRASER
pp. 492-498 figs., 673-691 figs. 27;
pp. 107-122 figs 28; J. Bombay Nat.
Hist. Soc.

List of Odonata of Laos, N. Siam,
pp. 161-165, FRASER J. Nat. hist. soc.
Siam. 4.

Paraneuroptera from Amboina, CAM-
PION p. 263 Entomologist 54.

The Dragonflies of South Africa,
RIS Ann. S. Afric. Mus. 18 (part 3).

List of Chilean Odonata, MARTIN
pp. 19-25 Revist. Chilena Hist. Nat. 25.

Aciagrion hisopa race n. *krishna*
Mahableshwar p. 543, FRASER J. Bom-
bay Nat. Hist. Soc. 27.

Acisoma lacroixi sp. n. Grand-Bassam,
MARTIN Agric. prat. pays chauds 1905
p. 175 (not seen by recorder).

Aeschna crenata, serrata in Finland,
morphology, VALLE Acta. soc. fauna et
fl. Fenn. 48 No. 5, 27 pp. 2 plates.

Aeshna bonariensis var. n. *lutea*
Argentina, NAVÁS p. 11 Mem. Acc.
Nuovi Lincei 5 1920.

Agriocnemis exsudans Selys, CAMPION
p. 44 Ann. Nat. Hist. 8.

Agriogomphus hamatus sp. n. p. 4
figs. 1-12 14-15 sp. n., p. 17, fig. 13,
Colombia, WILLIAMSON Occ. Pap. Mus.
Zool. Univ. Michigan No. 59 1918.

Archaeogomphus gen. n. for *Agrio-*
gomphus hamatus, WILLIAMSON Occ.
Pap. Mus. Zool. Univ. Michigan No. 63
1919.

Argia rectangula sp. n. Colombia,
NAVÁS p. 1 Mem. Acc. Nuovi Lincei 5
1920.

Argiolestes ochraceus Montr. (as *Sym-*
pecma) = (*rouxi* Ris), CAMPION p. 35
Ann. Nat. Hist. 8.

Bradinopyga subcancellata sp. n. Mo-
zambique p. 94, MARTIN Ann. Soc. ent.
France 90.

Caconeura annandalei sp. n. Maha-
bleshwar p. 543, FRASER J. Bombay
Nat. Hist. Soc. 27.

Calopteryx splendens intermedia, varr.,
MORTON pp. 222 and 223 Ent. Mo. Mag
57.—*C. splendens* biot. n. *shachrudicus*
Persia, BARTENEV p. 43 Rev. Russe.
Ent. 16 1916.

Cephalaeschna ? sp. Assam, p. 80,
LAIDLAW Rec. Ind. Mus. 22.

Ceriagrion suave sp. n. Katanga p.
316 fig. 32, RIS Ann. S. Afric. Mus. 18.

Chlorocnemis marshalli sp. n. Mashona-
land p. 291 fig. 20, pl. vii fig. 8, RIS
T.c.

Chlorolestes conspicua, life-history,
BARNARD p. 445, figs. Ann. S. Afric.
Mus. 18.—*C. peringueyi* sp. n. Cape
Colony p. 282 fig. 16, pl. vii. fig. 3, RIS
T.c.

Crocothetrum gen. n. *smithi* sp. n.
Siam p. 162, FRASER J. Nat. hist. soc.
Siam 4.

Cyptolestes gen. n. near *Archilestes*
p. 4, *tuberalatus* sp. n. Venezuela p. 6,
WILLIAMSON Occ. Pap. Mus. Zool.
Univ. Michigan No. 96.

Dicterias peruviana sp. n. Peru, NAVÁS p. 34 fig. An. Soc. Cient. Argent. 90 1920.

Diplacodes spinulosa sp. n. Africa (Zumbo) p. 32, fig. 25, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Disparoneura williamsoni n.n. for *oculata* M., MARTIN p. 96 Ann. Soc. ent. France 90.

Donzella gen. n. p. 30, *Libellulidae*, *madegassa* sp. n. Madagascar p. 30 fig. 24, NAVÁS Mem. Acc. Nuovi Lincei 33 1915.

Enallagma rotundipenne South Africa p. 321 fig. 34, *fractum* South Africa p. 329 fig. 39, *sinuatum* South Africa p. 330 fig. 40, *subtile* Katanga p. 332 fig. 41, spp. n., RIS Ann. S. Afric. Mus. 18.

Eptophlebia laidlawi sp. n. Himalayas p. 95 pl. xiii textfigs. 1-4, TILLYARD Rec. Ind. Mus. 22.

Erpetogomphus boa p. 153, figs., and *tristani* p. 154, notes on, *constrictor* sp. n. Mexico p. 154, figs., RIS Arch. Natg. 82 A. 3 1917.—*E. sabaleticus* sp. n. Colombia, WILLIAMSON p. 1 pl. i fig. 3, pl. ii figs. 9-11 Occ. Pap. Mus. Zool. Univ. Michigan No. 52 1918.

Gomphomacromia chilensis sp. n. Central Chile, MARTIN p. 23 Revist. Chilena Hist. Nat. 25.

Gomphus lineatifrons sp. n. Pennsylvania p. 222 figs., *dilatatus* and *vastus* notes on pp. 224 and 228, figs., CALVERT Trans. Amer. Ent. Soc. 47 1921.—*G. subapicalis* or *submedianus* naiad, KENNEDY p. 596 pl. cxv figs. 8-12 P. U. S. Mus. 59.

Gynacantha bainbriggei oviposition in earth, larva, FLETCHER p. 270 pl. Rep. ent. meeting Pusa 4.

Heteragrion, tables and descriptions of species, WILLIAMSON Occ. Pap. Mus. Zool. Univ. Michigan No. 68 1919.—*H. ictericum* British Guiana p. 17 figs., *melanurum* British Guiana p. 20 figs., *alienum* Central America p. 33 figs., *calendulum* Colombia p. 36 figs., *nitratum* Colombia p. 39 figs., *simulatum* British Guiana p. 47 figs., *peregrinum* Colombia p. 51 figs., spp. n., WILLIAMSON T.c.

Idionyx corona Mysore p. 690, *ornata* Assam p. 691, spp. n., FRASER J. Bombay Nat. Hist. Soc. 27.

Ischnogomphus gen. n. of *Gomphinae* p. 6, *jessei* sp. n. Colombia p. 10 pl. i fig. 1 pl. ii figs. 5-8, WILLIAMSON Occ. Pap. Mus. Zool. Univ. Michigan No. 52 1918.

Isosticta tillyardi sp. n. New Caledonia p. 38, *spinipes* Selys p. 41, *robustior* Ris p. 42 figs., CAMPION Ann. Nat. Hist. 8.

Jagoria martini sp. n. Darjiling p. 76, LAIDLAW Rec. Ind. Mus. 22.

Lestes sponsa, oviposition, p. 112, VALLE Notulae Ent. 1.—*L. wahlbergi* sp. n. Caffraria p. 272 fig. 10, RIS Ann. S. Afric. Mus. 18.

Macromia thetis South Africa p. 379 figs. 65-66 pl. x fig. 2, *clymene* Katanga p. 381 fig. 67 pl. x fig. 3, spp. n., RIS T.c.—*M. trituberculata* sp. n. Assam p. 685, FRASER J. Bombay Nat. Hist. Soc. 27.

Mesogomphus elpidius sp. n. South Africa p. 436 figs. 49-51 pl. ix fig. 3, RIS Ann. S. Afric. Mus. 18.

Metaphya elongata sp. n. New Caledonia p. 64 pl. ix f. 17, CAMPION Ann. Nat. Hist. 8.

Mnais incolor sp. n. Laos, MARTIN p. 96 Ann. Soc. ent. France 90.

Onychogomphus flavohamatus Flores, *aquila* Laos, spp. n., p. 95, MARTIN T.c.

Prey of *Orthetrum*, Africa, CAMPION pp. 213-215 Ann. Nat. Hist. 8.

Orthetrum brachiale and *chrysostigma*, male characters, figs., CAMPION pp. 240-242 T.c.

Oxystigma cyanofrons sp. n. British Guiana p. 58, figs., WILLIAMSON Occ. Pap. Mus. Zool. Univ. Michigan No. 68 1919.

Peristicta lizeria sp. n. Argentina, NAVÁS p. 45 fig. An. Soc. Cient. Argent. 90 1920.

Phyllomacromia biflava sp. n. Grand-Bassam, MARTIN Agric. prat. pays chauds 1905 p. 176 (not seen by recorder).

Platycnemis pennipes oviposition p. 112, VALLE Notulae Ent 1.

Progomphus obscurus naiad p. 595
pl. cxv figs. 1-7, KENNEDY P.U.S.
Mus. 59.

Pseudagrion salisburyense South
Africa p. 306 fig. 26, *natalense* South
Africa p. 307 fig. 27 pl. viii fig. 1,
spp. n., RIS Ann. S. Afric. Mus. 18.

Pseudomacromia meruensis probably
the same as *natalensis*, RICH p. 46
Canad. Ent. 53.

†*Stenogomphus* ? *scudderi* sp. n.
Eocene Wyoming p. 30 pl. viii figs.
5 & 9, COCKERELL P. U. S. Mus. 59.

Superlestes gen. n. type *Lestes exo-*
letus Selys p. 2, *exoletus* redescribed p. 2,
WILLIAMSON Occ. Pap. Mus. Zool.
Univ. Michigan No. 96.

Sympetrum, classification and con-
stitution, BARTENEV Varšava Izv.
Univ. 1916 1917 19 pp.—*S. atripes*
a good species, HOWE p. 80 figs. Ent.
News 32.—*S. corruptum* in Massachu-
setts, MORSE p. 7 Psyche 28.—*S. san-*
guineum sanguineum ab. n. *fuscum-*
brata Rostov on Don, BARTENEV p. 321
Rev. Russe Ent. 16 1917.

Synthemis miranda Selys p. 50 pl.
viii f. 50, *montaguei* p. 55 f. 13, *flexi-*
cauda p. 57 f. 14, *fenella* p. 61 pl. ix
f. 16, spp. n., New Caledonia, *S. nymph*
p. 63, CAMPION Ann. Nat. Hist. 8.

Uropetala chiltoni sp. n. New Zealand
p. 344, *carovei* larva pl. liii, TILLYARD
Tr. N. Z. Inst. 53.

Zyxommoides gen. n. near *Zyxomma*,
breviventre sp. n. Laos, MARTIN p. 94
Ann. Soc. ent. France 90.

ORTHOPTERA.

Orthoptera of Western Australia,
ALEXANDER pp. 97-103 J. R. Soc. W.
Australia 2.

Orthoptera of Hanover, FRITZE pp.
38-47 Jahresber. nat. hist. Ges. Han-
nover 62-68 1919 Zool.

Orthoptera of Switzerland pp. 1-262
FRUHSTORFER Arch. Natg. 87 Abt. A.
Heft 5.

Copulation and spermatophores in
Gryllidae and *Locustidae* pp. 293-327,
GERHARDT Acta Zool. Stockholm 2.

Regeneration of legs in Saltatorial
Orthoptera, GRIFFINI pp. 16-26, 39-56
2 figs. Natura 2 1911.

Records of Sardinian *Orthoptera*,
KRAUSSE pp. 121-122 Arch. Natg.
81 A 2 1915.

The olfactory sense of *Orthoptera*
pp. 405-427, MCINDOO J. comp. Neur.
31.

Acridiidae and *Locustidae* of N.
Mongolia, PYLNOV pp. 275-284 figs.
1-6 Rev. Russe Ent. 16 1917.

Orthoptera saltatoria of Russia,
STSHELKANOVITZEV pp. 135-138 Rev.
Russe Ent. 17.

Distribution of *Orthoptera* in Cau-
casus and Western Asia, UVAROV pp.
447-472 map Proc. Zool. Soc. London
1921.

FORFICULIDAE.

Earwigs from Mesopotamia and N.
W. Persia, BUXTON pp. 963-964 J.
Bombay Nat. Hist. Soc. 27.

Anisolabis cavalerici sp. n. China
p. 158, BORELLI Bul. Muséum Paris
1921.

Echinosoma trilineatum p. 77 India,
rufum p. 78 French Guinea, spp. n.,
BORELLI Bul. Muséum Paris 1921.

Euborellia fulviceps sp. n. Africa p.
157, BORELLI Bul. Muséum Paris
1921.—*E. caraibea* sp. n. N. Amer.
and key to species of *janeirensis* group
p. 321, HEBARD Trans. Amer. ent. soc.
47.

Hemimerus hansenii in E. Africa,
GEDYE p. 91 Ent. Mag. 57.

Landex burri sp. n. Siam p. 81,
brachyptera var. n. p. 82 ? Ceylon,
BORELLI Bul. Muséum Paris 1921.

Metresura gen. n. (type *Forficula*
ruficeps Burm.) Costa Rica p. 314,
REHN Trans. Amer. ent. soc. 47. |

Narberia tuberculata sp. n. China p. 160, BORELLI Bul. Muséum Paris 1921.

Neolobophora and *Neocosmiella* generic differences p. 311, REHN Trans. Amer. ent. soc. 47.

Paracosmia carrikeri sp. n. Costa Rica p. 316, REHN Trans. Amer. ent. soc. 47.

Prolabia calverti sp. n. Costa Rica p. 308, REHN Trans. Amer. ent. soc. 47.

Psalis purpurea sp. n. Congo p. 156, BORELLI Bul. Muséum Paris 1921.

Rhyacolabis gen. n. p. 312, *anachoreta* sp. n. (*Neolobophora bogotensis* Bonn nec. Scud.) Costa Rica p. 313, REHN Trans. Amer. ent. soc. 47.

BLATTIDAE.

Anaplecta maronensis Guiana p. 194, *xanthopeltis* Brazil p. 222, spp. n., HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.—*A. saussurei* sp. n. Mexico p. 200, HEBARD Trans. Amer. ent. soc. 47.

†*Archimylacris pringlei* sp. n. Keele group Upper Coal Measures Shropshire p. 23 text-fig. 1 pl. i figs. 1, 2, BOLTON Q. J. Geol. Soc. London 77.

Asemoblatta gen. n. *Ectobiinae* p. 110, *nana* sp. n. Colombia p. 112, HEBARD Trans. Am. Ent. Soc. 47.

Blaptica interior sp. n. Argentine p. 286, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Blatta orientalis and *Blattella germanica* life-histories and methods of control, LAING British Museum (Nat. Hist.) Economic Series No. 12.

Cariblatta mesembrina sp. n. Argentine p. 258, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Ceuthobia gen. n. p. 292, *lepta* sp. n. Argentine p. 293, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Ceuthobiella gen. n. for *Melestora minutissima* Rehn. p. 246, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Chorisoneura gatunae sp. n. Panama p. 167, HEBARD Ent. News 32.—*C. guianae* p. 217, *barticae* p. 219, spp. n. Guiana, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

(N-17041 j) q

Chromatonotus andagoyae sp. n. Colombia p. 113, HEBARD Trans. Amer. Ent. Soc. 47.

Dasyblatta gen. n. p. 224, *thausasia* Brazil p. 225, *chopardi* Argentina p. 257, spp. n., HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Ectobius neolividus sp. n. Mediterranean, etc. p. 78, *nigrus* Ebner distinct sp. p. 75, FRUHSTORFER Arch. Natg. 87 Abt. A. Heft 5.

Epilampra maya subsp. n. *brachyptera* Mexico p. 210, HEBARD Trans. Amer. ent. soc. 47.—*E. berlandi* sp. n. Argentine p. 282, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Eublabeus argentinus sp. n. Argentine p. 290, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Eudromiella aglaia sp. n. Argentine p. 255, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Euhypnorna gen. n. p. 163 near *Hypnorna*, *grata* sp. n. Panama p. 165 pl. iii, HEBARD Ent. News 32.

Euphyllodromia stigmatosoma sp. n. Colombia p. 129, HEBARD Trans. Amer. ent. soc. 47.—*E. chopardi* sp. n. Guiana p. 202, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Hypercompsa anolaima sp. n. Colombia p. 150, HEBARD Trans. Amer. ent. soc. 47.

Hyporhcnoda maronensis sp. n. Guiana p. 207, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.—*H. metae* p. 138, *litomorpha* p. 139 spp. n. Colombia, HEBARD Trans. Amer. ent. soc. 47.

Ischnoptera evansi sp. n. Mesopotamia p. 759, figs. 1, 2, CHOPARD J. Bombay Nat. Hist. Soc. 27.—*I. cararana* p. 267, *argentina* p. 270, *litostylata* p. 272, *saussurei* p. 274, *icano* p. 276, spp. n. Argentine, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.—*I. flagellifer* p. 119, *implicata* p. 121, spp. n. Colombia, HEBARD Trans. Amer. ent. soc. 47.

Lanta gen. n. p. 295, *scotia* p. 296, *peniculiger* p. 298 spp. n. Argentine, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Latiblattella picturata sp. n. Mexico p. 203, HEBARD Trans. Amer. ent. soc. 47.

Leuropeltis gen. n., *atopa* sp. n. Guiana p. 198, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Lioblatta gen. n. p. 237 for *Ischnoptera brasiliensis* Brun., HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Muzoa gen. n. near *Nyctibora* p. 131, *simplex* sp. n. Colombia p. 132, HEBARD Trans. Amer. ent. soc. 47.

Neoblattella janeirae p. 226, *platystylata* p. 229, *eudromielloides* p. 232, *berlandi* p. 234 spp. n. Brazil, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.—*N. antiquiae* sp. n. Colombia p. 117, HEBARD Trans. Amer. ent. soc. 47.—*N. platystylata* sp. n. S. Amer. p. 198, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.—*N. tapenagae* sp. n. Argentine p. 262, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Oulopteryx gen. n. p. 214, *dascilloides* sp. n. Guiana p. 215, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.—*O. meliponarum* sp. n. Brazil p. 247, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Paratropes metae sp. n. Colombia p. 134, HEBARD Trans. Amer. ent. soc. 47.

Phoraspis brachytaenia sp. n. Brazil p. 239, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Phortioeca apolinari sp. n. Colombia p. 145, HEBARD Trans. Amer. ent. soc. 47.

Phyllodromia germanica, biology and control, WILLE Monog. angew. Ent. Nr. 5. 1920.

Polyphaga subhyalina p. 762, figs. 12 & 15, *persica* p. 763, figs. 14 & 16, spp. n. Persia, CHOPARD J. Bombay Nat. Hist. Soc. 27.

Pseudischnoptera rhabdota sp. n. Argentine p. 278, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Sciablatta gen. n. near *Rhytidometopum mamatoco* sp. n. Colombia p. 115, HEBARD Trans. Amer. Ent. Soc. 47.—*S. poecila* sp. n. Guiana p. 196, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Supellina gen. n. p. 760, *buxtoni* sp. n. Mesopotamia p. 760, figs. 3-7, CHOPARD J. Bombay Nat. Hist. Soc. 27.

Tribonidium amplum sp. n. Brazil p. 243, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

Xestoblatta poecila p. 124, *micra* p. 125 spp. n. Colombia, HEBARD Trans. Amer. ent. soc. 47.

Zetoborella gen. n. p. 210, *gemmicula* sp. n. Guiana p. 211, HEBARD Proc. Acad. Nat. Sci. Philadelphia 73.

MANTIDAE.

Catalogue *Eremiaphilinae*, with keys, p. 1-36, GIGLIO-TOS Wytsman's Gen. Ins. fasc. 177.

Records and descriptions of African *Mantidae*, WERNER pp. 79-87 figs. 1-3 Arch. Natg. 81 A. 5 1915.

Calidomantis multipunctata sp. n. Boma Sundi p. 83, WERNER Arch. Natg. 81 A. 5 1915.

Carrikerella gen. n. near *Pogonogaster* p. 157, *ceratophora* sp. n. Colombia p. 159, HEBARD Trans. Amer. ent. soc. 47.

Empusa uvarovi sp. n. Mesopotamia p. 764 fig. 17, CHOPARD J. Bombay Nat. Hist. Soc. 27.

Eremiaphila fraseri sp. n. Mesopotamia, UVAROV p. 175 Ent. Mo. Mag. 57.

Hebardia gen. n. (*Caliridinae*), *pellucida* sp. n. Sumatra p. 128, WERNER Treubia Buitenzorg 2.

Hymenopus coronatus Oliv. biological note, p. 136, JACOBSON Treubia Buitenzorg 2.

Mantis moesta sp. n. ? Tanganyika p. 83, WERNER Arch. Natg. 81 A. 5 1915.

Phylloharpax gen. n. *Harpagidae* p. 84, *coxalis* Cameroon p. 84, fig. 3, *xenocentrus* Congo p. 85, fig. 2, spp. n., WERNER Arch. Natg. 81 A. 5 1915.

Pseudomantis sondaica sp. n. Sumatra p. 132, WERNER Treubia Buitenzorg 2.

Sphodromantis cayibrachia sp. n. Congo p. 82, WERNER Arch. Nat. 81 A. 5 1915.

Tarachodes severini French Congo p. 80, *congolensis* Boma Sundi p. 81, *brevipennis* Congo p. 81, spp. n., WERNER Arch. Nat. 81 A. 5 1915.

Thespis metae sp. n. Colombia p. 155, HEBARD Trans. Amer. ent. soc. 47.

PHASMIDAE.

Rhythmic movement in *Dixippus* pp. 41-48, BUDDENBROCK Biol. Centralbl. 41.

Dixippus morosus Br. influence of light on coloration in, pp. 151-160, SCHLEIP Zool. Anz. 52.

Isagoras chocoensis sp. n. Colombia p. 164, HEBARD Trans. Amer. ent. soc. 47.

Phyllium bioculatum G. R. Gray, detailed biology pp. 227-266, GRIMPE Zool. Jahrb. Jena Abt. f. Syst. 44.

GRYLLIDAE.

Acheta amarensis sp. n. Mesopotamia p. 769, CHOPARD J. Bombay Nat. Hist. Soc. 27.

†*Gryllotalpa prima* sp. n. oligocene Isle of Wight p. 474 f. 39, COCKERELL Ann. Nat. Hist. 7.

Gryllus campestris L. a ♀ nymph with three cerci p. 189, KEGEN Zool. Anz. 52.—*G. domesticus*, out of doors, AUSTEN p. 127, CAMPION p. 246, Entomol. 54.—*G. domesticus*, habitat, PORRITT p. 185, NICHOLSON p. 234, Ent. Mo. Mag. 57.—*G. domesticus*, native country, var. n. *meridionalis* Khartoum pp. 138-140, UVAROV T.c.—*G. tartarus obscurus* subsp. n. Caucasus p. 50, UVAROV T.c.—†*G. vetus* p. 474 f. 40, *oligocenus* p. 475 f. 41, spp. n. oligocene Isle of Wight, COCKERELL Ann. Nat. Hist. 7.

†*Pronemobius ornatipes* sp. n. eocene Colorado p. 29 pl. viii f. 8, COCKERELL P. U. S. Mus. 59.

LOCUSTIDAE OR PHASGONURIDAE OR TETTIGONIIDAE.

Ancistrura gen. n. p. 157 near *Barbitistes*, *truncata* sp. n. Macedonia p. 158, UVAROV Ent. Rec. 33.

Barbitistes obtusus alpina subsp. n. p. 179, o. ff. *viridescens*, *picta* n. p. 176 Switzerland, FRUHSTORFER Arch. Natg. 87 Abt. A Heft 5.

Basileus diadematus and *B. repandus* specifically distinct pp. 308-310, UVAROV Ent. News 32.

Casigneta spinicauda sp. n. Philippine Is. p. 614, KARNY Philip. J. Sci. 18.

(N-17041 j) q

Chopardina gen. n. p. 206 near *Gymnoplectron*, *importata* sp. n. in greenhouse England p. 207, UVAROV Ent. Mo. Mag. 57.

Conocephalus buxtoni sp. n. Mesopotamia p. 765 figs. 18-20, CHOPARD J. Bombay Nat. Hist. Soc. 27.—*C. attenuatus*, habits, Fox p. 268 Ent. News 32.

Diestrammena = (*Paradiestrammena* Ch.), species p. 210, CHOPARD p. 209 Bull. Soc. ent. France 1921.

Drymadusa mokanshanensis sp. n. China p. 34, CAUDELL P. ent. Soc. Washington 23.

Ephippigera persicaria p. 230, *plini-ana* p. 233 spp. n., *crucigera eustratia* subsp. n. p. 231 Switzerland, FRUHSTORFER Arch. Natg. 87 Abt. A Heft 5.

Furnia bakeri sp. n. Philippine Is. p. 617, KARNY Philip. J. Sci. 18.

Gampsocleis abbreviata ebneri subsp. n. Macedonia p. 159, UVAROV Ent. Rec. 33.

Gnathoclitia peruviana sp. n. Peru p. 306, CARL Rev. Suisse Zool. 28.

Hyphinomus gen. n. p. 74 *Tettigoniidae*, *fasciata* sp. n. Tibet p. 74, UVAROV J. Bombay Nat. Hist. Soc. 28.

Isophya caucasia p. 46, *bivittata* p. 47, spp. n. Caucasus, UVAROV Ent. Mo. Mag. 57.

Japygophana gen. n. p. 301, *peloti* sp. n. Gaboon p. 302 fig., CARL Rev. Suisse Zool. 28.

Leptophyes nigrovittata sp. n. Tiflis p. 47, UVAROV Ent. Mo. Mag. 57.

Meconema varium, stridulation, CAPPE DE BAILLON Ann. Soc. ent. France 90 pp. 69-80.

Nastonotus foreli sp. n. Colombia p. 205, CARL Rev. Suisse Zool. 28.

Nicephora forficulata sp. n. Ceylon p. 308, CARL Rev. Suisse Zool. 28.

Oedipoda miniata, noise of flight pp. 21-22, ENSLIN Ent. Rundsch. 38.

Olynthoscelis distincta sp. n. Tiflis p. 49, UVAROV Ent. Mo. Mag. 57.

b 17-3

Orchelimum volantum, habits, Fox p. 265 Ent News 32.

Pachypygia n.n. for *Pachypyga* Karsch p. 106, STRAND Ent. Zs. 34.

Paradrymadusa gazvinensis sp. n. Persia p. 767 figs. 27-30, CHOPARD J. Bombay Nat. Hist. Soc. 27.—*P. satunini*, ♀, UVAROV p. 48 Ent. Mo. Mag. 57.

Phaula teretiuscula sp. n. Philippine Is. p. 164, KARNY Philip. J. Sci. 18.

Pholidoptera persica sp. n. Persia p. 766 figs. 21-23, CHOPARD J. Bombay Nat. Hist. Soc. 27.

Phyllomimus bakeri sp. n. Philippine Is. p. 611, KARNY Philip. J. Sci. 18.

Platyceles burri sp. n. Transcaucasus p. 50, UVAROV Ent. Mo. Mag. 57.—*P. tomini* sp. n. N. Mongolia PYLNOV p. 280 figs. 1 2 Rev. Russe Ent. 16 1917.—*P. brachyptera* ff. n. *restricta*, *rhactorum* p. 220, *deminuta* p. 221, *saussureana* f. n. *rugosa* p. 223, Switzerland, FRUHSTORFER Arch. Natg. 87 Abt. A Heft 5.

Poecilimonella gen. n. p. 44 near *Poecilimon*, *armeniaca* sp. n. Transcaucasus p. 45, UVAROV Ent. Mo. Mag. 57.

Psophus stridulus, stridulation, ENSLIN pp. 21, 40, FRINGS p. 43, STADLER p. 53 Ent. Rundsch. 38.

Psyra sondaica sp. n. Java, Sumatra p. 303, CARL Rev. Suisse Zool. 28.

Saga campbelli sp. n. Macedonia p. 158, UVAROV Ent. Rec. 33.

Tachycines asynamorus, in Belgium, CARPENTIER p. 52 Ann. Soc. ent. Belgique 61.—*Tachycines* and *Diestrammena*, synonymy, CHOPARD p. 209 Bull. Soc. ent. France 1921.

Troglophilus spinulosus sp. n. Crete p. 147 fig., CHOPARD Bull. Soc. ent. France 1921.

Yorkiella vidua sp. n. Queensland p. 307, CARL Rev. Suisse Zool. 28.

ACRIDIDAE.

Monograph of the Australian Acridiidea SJÖSTEDT Stockholm Vet. Ak. Handl. 62 No. 3.

Orthoptera Acridiidea of Mesopotamia and N. W. Persia, UVAROV pp. 803-812 J. Bombay Nat. Hist. Soc. 27.

Ablectia gen. n. *rufescens* sp. n. p. xiii f. 10 p. 205 Australia, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

Acrida exaltata Walk., UVAROV p. 481 Ann. Nat. Hist. 7.

Acridium irregulare var. *signata* var. n. p. 261, *meleager* sp. n. pl. xv f. 17 pl. xvi f. 9 pl. xvii f. 6 6A p. 263, *modesta* var. n., *pulchripes* sp. n. pl. xvii f. 9 9A p. 264, Australia, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

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Aeolopus burri sp. n. Macedonia p. 155, UVAROV Ent. Rec. 33.

Aerochoreutes gen. n. (type *Oedipoda carliniana* Thomas) p. 172, *strepitus* subsp. n., p. 174 Nevada, REHN Trans. Amer. ent. soc. 47.

Amphiprosopia gen. n. for *H. adjuncta* Walker, p. 143, UVAROV Trans. ent. soc. London 1921.

Apacris W., UVAROV p. 502 Ann. Nat. Hist. 7.

Apotropis affinis p. 197, *sulphuripennis* p. 198 pl. xiii f. 1 1A, *rubriveneter* p. 199, spp. n., Australia, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

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Asoramea gen. n. p. 130, *erythroptera* sp. n. p. 131 pl. vii f. 4 4A Australia, SJÖSTEDT T.C.

Aswatthamanus cylindricus K. = (*Lefroya acutipennis* K.), UVAROV p. 482 Ann. Nat. Hist. 7.

Aulacobothrus bolivari sp. n. Bengal p. 483, *luteipes* W. (as *Stenobothrus*) = (*taeniatus* Bol.), *decisus* W. = (*socius* Bol.), p. 482, UVAROV Ann. Nat. Hist. 7.—*A. africanus* p. 370, *A. ? crassipes* p. 371, spp. n., S. Africa, UVAROV Ann. Nat. Hist. 8.

Austrobothrus gen. n. p. 33, *ustatus* p. 34 pl. i f. 13 sp. n. Australia, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

Austroglyphus gen. n. p. 99, *roseovitatus* sp. n. p. 100 pl. iii f. 22 Australia, SJÖSTEDT T.c.

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Betisca gen. n. type *Pseudura pedestris* p. 104 Australia, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

Bibulus desertus sp. n. Arabia p. 131, UVAROV Trans. ent. soc. London 1921.

Brachyexarna gen. n. *lobipennis* sp. n. pl. xiv f. 13A 13B 13C 13D p. 224 Australia, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

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Cataloipus abyssinicus p. 141 Abyssinia, *roseipennis* p. 142 Nyasa, spp. n., UVAROV Trans. ent. soc. London 1921.

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Ceracris nigricornis W. = (*versicolor* Br., W.) p. 485, *decolorata* Br. = (*cinctalis* K.) p. 486, UVAROV Ann. Nat. Hist. 7.

Choroedocus redescription of genus and key to species, pp. 106-110, UVAROV Trans. ent. soc. London 1921.

Chortippus dorsatus ff. n. *nigripennis*, *pallilis* Switzerland p. 130, FRUHSTORFER Arch. Natg. 87 Abt. A Heft 5.—*C. (Stenobothrus) alticola* sp. n. Tyrol p. 246, RAMME D. ent. Zs. 1921.

Chortoicetes marginalis sp. n. p. 49 pl. i f. 27 Australia, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

Chrysochraon brachypterus chrysoberyllus subsp. n. S. Switzerland pp. 95 and 96, FRUHSTORFER Arch. Natg. 87 Abt. A Heft 5.—*C. anomopterus* sp. n. China p. 32, CAUDELL P. ent. Soc. Washington 23.

Circotettix coconino p. 187 Arizona, *crotalum* p. 191 Nevada, spp. n., *rabula* subsp. n. *altior* p. 183 New Mexico, REHN Trans. Amer. ent. soc. 47.

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Conophyma mitchelli sp. n. Kashmir p. 268, UVAROV Ent. Mo. Mag. 57.

Coryphistes planicostatus p. 116, pl. v f. 6, *kimberleyensis* p. 285, pl. v f. 1-2a, spp. n., Australia, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

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Doclostaurus, revision pp. 397-407, *plotnikov* p. 400, *kurdus* p. 401, spp. n. Turkestan, UVAROV Bull. ent. Res. 11.

Epallia gen. n. Australia, type *Goniaea plana* p. 195, SJÖSTEDT Stockholm Vet.-Ak. Handl. 62 No. 3.

Erythropomala variecollis sp. n. Australia p. 110, pl. ii f. 8, SJÖSTEDT T.c.

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Eupreponotus gen. n. p. 507 near *Belonocnemis inflatus* sp. n. India p. 508, UVAROV Ann. Nat. Hist. 7.

Faureia gen. n. p. 389 *Scyllinae*, *rosea* sp. n. Pretoria p. 391 fig. 4, UVAROV Ann. Nat. Hist. 8.

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Heteracris acuminata, *calliptamoides*, spp. n., S. Africa p. 134, UVAROV Trans. ent. soc. London 1921.

Hippiscus olancha sp. n. California p. 149, CAUDELL Ent. News 32.

Hygracris gen. n. p. 505, *palustris* sp. n. Pusa p. 506, UVAROV Ann. Nat. Hist. 7.

Jucundacris gen. n. for *C. pictipes* Walker p. 120, UVAROV Trans. ent. soc. London 1921.

Leptosirtus evansi sp. n. Mesopotamia p. 805, UVAROV J. Bombay Nat. Hist. Soc. 27.

Leva, components, UVAROV p. 485
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Morphacris fasciata, synonymy,
UVAROV p. 488 Ann. Nat. Hist. 7.

Oedaleus senegalensis (= *Pachytylus*
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Ann. Nat. Hist. 7.

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Orinhippus gen. n. p. 71 *Locustidae*,
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Spathosternum prasiniferum, additional synonyms, UVAROV p. 495 Ann. Nat. Hist. 7.

Stauroderus miniatus f. *smaragdina* form n. Switzerland p. 116, FRUHSTORFER Arch. Natg. 87 Abt. A Heft 5.

Stauronotus maroccanus, biology, LA BAUME pp. 157-274 Monog. Z. angew. Ent. 3 1918.

Stenobothrus lineatus ff. n. *interposita*, *myrina* Switzerland p. 108, FRUHSTORFER Arch. Natg. 76 Abt. A Heft 5.

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Thisoicetrinus gen. n. for *A. dorsatum* F. de Wald p. 128, UVAROV Trans. ent. soc. London 1921.

Thisoecetrus buxtoni sp. n. Mesopotamia p. 807, UVAROV J. Bombay Nat. Hist. Soc. 27.—*Th. littoralis* var. n. *minuta* Algeria p. 123, *pulchripes* ab. n. *coeruleipennis* Barberton p. 125, ssp. n. *aurantiaca* Sierra Leone p. 126, *attenuatus* sp. n. C. Africa p. 128, and synonymy, UVAROV Trans. ent. soc. London 1921.

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Collembola living in snow at 14,000 feet, in India, PARKER pp. 639-641 J. Bombay Nat. Hist. Soc. 27.

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Actaletes, ecology, WILLEM pp. 524-540 figs. 1-3 Bull. Ac. Belgique 6.

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INCLUDING

ENTEROPNEUSTA AND PTEROBRANCHIA

BY

J. R. NORMAN.

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- 2.—Ärnäck-Christie-Linde, A. A remarkable Styelid Tunicate from Spitzbergen. Ann. Mag. Nat. Hist. London Ser. 9 7 1921 pp. 347-352.
- 3.—Ayers, H. Ventral spinal nerves in *Amphioxus*. J. Comp. Neur. Philadelphia 33 1921 pp. 155-162.
- 4.—Crozier, W. J. Notes on some problems of Adaptation: 6. Relation of light to the pigmentation of Ascidiaceans. Biol. Bull. Wood's Hole Mass. 41 1921 pp. 106-111.
- 5.—Grape, C. *Amaroucium pellucidum* (Leidy) form *constellatum* (Verrill). I. The activities and re-actions of the tadpole larva. J. Exp. Zool. Philadelphia 30 1920 pp. 239-257.
- 6.—Huntsman, A. G. Age-determination, Growth and Symmetry in the Test of the Ascidian, *Chelyosoma*. Trans. Canad. Inst. Toronto 13 Pt. 1 1921 pp. 27-38 pl. i.
- 7.—Huxley, J. S. Studies in Dedifferentiation. II. Dedifferentiation and resorption in *Perophora*. Q. J. Microsc. Sci. London 65 1921 pp. 643-697 pls. xxvi-xxviii.
- 8.—Jaekel, O. Über fragliche Tunicaten aus dem Perm Siziliens. Palaeont. Zs. Berlin 2 1915-1918 pp. 66-74 1 pl.
- 9.—Kirkpatrick, R. On the Discovery of the missing Type Specimen of the Ascidian *Oculinaria australis*, Gray. Ann. Mag. Nat. Hist. London Ser. 9 8 1921 pp. 494-496.
- 10.—Mast, S. O. Reactions to light in the larvae of the ascidiaceans *Amaroucium constellatum* and *A. pellucidum*, with special reference to photic orientation. J. Exp. Zool. Philadelphia 34 1921 pp. 149-187.
- 11.—Michaelsen, W. Expedition S.M. Schiff "Pola" in das Rote Meer nördliche und südliche Hälfte 1895/96-1897/98. Zoologische Ergebnisse xxxiii. Ascidae Krikobanchiae des Roten Meeres: Clavelinidae und Synoicidae. Denkschr. Ak. Wiss. Wien 97 1921. Berichte Komm. Ozean. For. 37 pp. 1 pl.
- 12.—Michaelsen, W. Ascidien vom westlichen Indischen Ozean aus dem Reichsmuseum zu Stockholm. Ark. Zool. Stockholm 13 No. 23 1921 pp. 1-25 1 pl.
- 13.—Norman, J. R. *Rhabdopleura*. British Antarctic (Terra Nova) Exped. Zool. 4 No. 4 1921 pp. 95-102.
- 14.—Orton, J. H. The Production of Living *Clavellina* Zooids in Winter by Experiment. Nature London 107 1921 p. 75.
- 14a.—Redikorzev, V. V. Faune de la Russie et des Pays limitrophes fondée principalement sur les collections du musée zoologique de l'Académie Impériale des Sciences de Petrograd. Tunicies (Tunicata). Livr. I. Petrograd 1916 8vo. 336 pp. 6 pls. and figs.
- 15.—Stiasny, G. Eine neue Tornaria aus dem Ostindischen Archipel (*Tornaria sunieri*). Zool. Meded. Leiden 6 1921 pp. 101-107.
- 16.—Studwicks, F. K. Die lateralen Rumpfmuskeln von *Amphioxus*. Anat. Hefte Wiesbaden Abth. 1 58 1920 pp. 215-398 4 pls.
- 17.—Van Name, W. G. Ascidiaceans of the West Indian Region and South Eastern United States. Bul. Amer. Mus. Nat. Hist. New York 44 1921 pp. 283-494.
- 18.—Van Name, W. G. Budding in Compound Ascidiaceans and other Invertebrates, and its Bearing on the question of the Early Ancestry of the Vertebrates. Bul. Amer. Mus. Nat. Hist. New York 44 1921 pp. 275-282.

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- 1.—Allis, E. P. The Branches of the Branchial Nerves of Fishes, with special reference to *Polyodon spathula*. J. Comp. Neur. Psych. Philadelphia 32 1920 pp. 137-153.
- 2.—Almy, L. H. and Robinson, R. K. Toxic action of ingested linseed meal on Trout. J. Biol. Chem. New York 43 1920 pp. 97-111.
- 3.—Andersson, E. Über einige Trias-Fische aus der Cava Trefontane, Tessin. Bull. Geol. Inst. Upsala 15 1916 pp. 13-34 pls. i-iii.
- Anderton, T. *vide* Thomson, G. M.
- Angel, F. *vide* Roule, L.
- 4.—Arambourg, C. Sur un Scopélide fossile a organes lumineux : *Myctophum prolaternatum* n. sp. du Sahélien oranais. Bul. soc. géol., Paris Ser. 4 20 1921 pp. 233-239 pl. ix.
- 5.—Arambourg, C. Traces d'organes lumineux observées chez quelques Scopélidés fossiles. Compte-Rendu Soc. Géol. France Paris 1920 pp. 167-168.
- 6.—Arambourg, C. Sur la faune ichtyologique du Sahélien de la région d'Oran. C. R. Acad. sci. Paris 172 1921 pp. 1243-1245.
- 7.—Archey, G. A New Species of Shark. Trans. New Zealand Inst. Wellington 53 1921 pp. 105-106 pl. xxxix.
- 8.—Athanassopoulous, G. Quelques observations sur les civelles (jeune anguilles, cieche d'anguilla, Glass-Aalen). Bul. Inst. Ocean. Monaco 383 1921 8 pp.
- 9.—Audigé, P. Sur la croissance des Poissons maintenus en milieu de température constante. C. R. Acad. sci. Paris 172 1921 pp. 287-289.
- 10.—Audigé, P. Influence de la température sur la croissance des poissons. C. R. soc. biol. Paris 84 1921 pp. 67-69.
- 11.—Audigé, P. La croissance des poissons et l'inversion artificielle de la courbe des températures saisonnières du milieu. C. R. soc. biol. Paris 84 1921 pp. 635-646.
- 12.—Bauer, G. Die Histologie der Harnblase von *Esox lucius* und die histologisch-pathologischen Veränderungen derselben hervorgerufen durch *Myxidium lieberkühni* (Bütschli). Zool. Jahrb. Jena Abt. f. anat. 43 1921 pp. 149-170.
- 13.—Bertin, L. Note préliminaire sur la notion d'espèce et la variabilité chez les Epinoches. C. R. Acad. sci. Paris 172 1921 pp. 623-625.
- 14.—Bertin, L. L'extrême variabilité des Epinoches roscovites. C. R. Acad. sci. Paris 173 1921 pp. 602-604.
- 15.—Bertin, L. La valeur des caractères spécifiques dans le genre *Gasterosteus* Linné. Bul. Muséum Paris 1921 pp. 143-150.
- 16.—Birtwistle, W. Biometric Investigations on the Herring. Proc. Trans. Liverpool Biol. Soc. 35 1921 pp. 116-126.
- 17.—Borri, C. Considerazioni critiche sulla scissione del genere *Petromyzon*. Atti Soc. tosc. sc. nat. Pisa 33 1921 pp. 164-172.
- 18.—Boulenger, G. A. Description d'un Poisson aveugle découvert par M. G. Geerts dans la grotte de Thysville (Bas-Congo). Rev. Zool. Africaine Bruxelles 9 1921 pp. 252-253.
- 19.—Boutan, M. I. Sur le plan d'équilibre ou de moindre effort des Poissons Téléostéens à vessie natatoire. Proc. verb. soc. linn. Bordeaux 1916-1917 (1918) pp. 2-4.
- 20.—Bowman, A. The Distribution of Placice Eggs in the northern North Sea.—II. Fish. Board Scot. Sc. Investig. 1921 I 33 pp. 1 chart.
- 21.—Buglia, G. Ricerche sulla natura del veleno dell'anguilla. I. L'ittiotossico è termostabile. Atti Acc. Lincei Roma 28 1919 Sem. II pp. 54-58.

- 22.—Calderwood, W. L. Salmon Research in 1920—Sea Netting Results. Fish. Board Scotland Salmon Fisheries 1921 No. 1 pp. 1-11 2 maps.
- 23.—Chaine, J. Contribution à l'étude de la langue des Poissons. Proc.-verb. soc. linn. Bordeaux 1918-1919 (1920) p. 6.
- 24.—Chandler, A. C. A new Species of Ray from the Texas Coast, and Report of the Occurrence of a Top Minnow new to the Fauna of Eastern Texas. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 657-658.
- 25.—Cockerell, T. D. A. Some Fossil Fish Scales from Peru. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 19-20.
- 26.—Connor, M. E. Fish as Mosquito Destroyers. An account of the part they played in the control of Yellow Fever at Guayaquil, Ecuador. Nat. Hist. New York 21 1921 pp. 279-281.
- 27.—Cook, M. H. and Neale, H. V. Are the taste-buds of elasmobranchs endodermal in origin? J. Comp. Neur. Psych. Philadelphia 33 1921 pp. 45-63 4 pls.; Tuft's Coll. Stud. Mass. 5 1921 pp. 46-54 pls. i-iv.
- 28.—Coupin, F. Sur les formations choroidiennes des Selaciens. C. R. soc. biol. Paris 85 1921 pp. 699-700.
- 29.—Courrier, R. Sur le conditionnement des caractères sexuels secondaires chez les Poissons. C. R. soc. biol. Paris 85 1921 pp. 486-488.
- 30.—Courrier, R. Gland interstitielle du testicule et caractères sexuels secondaires chez les Poissons. C. R. Acad. sci. Paris 172 1921 pp. 1316-1317.
- 31.—Courrier, R. Sur l'existence d'une glande interstitielle dans le testicule des Poissons. C. R. soc. biol. Paris 85 1921 pp. 939-941.
- 32.—Cowan, D. Herring Investigations. II. Size. Dove Marine Lab. Rep. 10 1921 pp. 102-108.
- 33.—Cox, P. A Cyprinid new to Science. Canad. Field Nat. Ottawa 35 1921 pp. 66-67.
- 34.—Cox, P. Results of the Hudson Bay Expedition, 1920: II. The Gasterosteidae. Contr. Canad. Biol. Ottawa 1921 (1922) pp. 151-153.
- 35.—Crossland, C. Some Common Red Sea Fishes. Sudan Notes and Rec. Khartoum 3 1920 pp. 117-129.
- 36.—Crozier, W. J. Notes on some problems of adaption: 4. The Photic Sensitivity of *Ogilbia*. Biol. Bull. Wood's Hole Mass. 41 1921 pp. 98-101.
- 37.—Danois, E. le. Le Merlu. Résumé pratique de nos connaissances sur ce poisson. Off. Sci. Tech. Pêches Marit. Notes et Mém. Angers 2 1920 32 pp.
- 38.—Delphy, J. La "Grande" et la "Petite" Rousette. Ann. sci. nat. (zool.) Paris 3 1920 pp. 273-288.
- 39.—Demoll und Wohlgemuth. Einiges über die Lebensbedingungen der Forellenbrut im Freien. Biol. Centralbl. Leipzig 41 1921 pp. 165-172.
- 40.—Dörpinghaus, W. T. Fossile Äsungslöcher, eine Erklärung der fossilen Regentropfen. Zs. D. geol. Ges. Berlin B 67 1915 pp. 191-194.
- 41.—Eigenmann, C. H. The American Characidae. Mem. Mus. Comp. Zool. Cambridge Mass. 43 1921 pp. 209-310 28 pls.
- 42.—Eigenmann, C. H. The Fish Fauna of the Cordillera of Bogota. J. Washington Acad. Sci. 10 1920 pp. 460-468.
- 43.—Eigenmann, C. H. The Origin and Distribution of the Genera of the Fishes of South America, West of the Maracaibo, Orinoco, Amazon and Titicaca Basins. Proc. Amer. Phil. Soc. Philadelphia 60 1921 pp. 1-6.
- 44.—Eigenmann, C. H. The Nature and Origin of the Fishes of the Pacific Slope of Ecuador, Peru and Chili. Proc. Amer. Phil. Soc. Philadelphia 60 1921 pp. 503-523 pls. viii-x.
- 45.—Eigenmann, C. H. and Allen, W. R. A Leaf-mimicking Fish. Biol. Bul. Wood's Hole Mass. 41 1921 pp. 301-305.
- 46.—Ellis, F. W. Subepithelial Glycogen Cells in Embryo and recently hatched Fish. Science New York N.Y. 53 1921 pp. 418-420.
- 47.—Evans, H. M. The Poison Organs and Venoms of Venomous Fish. Brit. med. J. London 3174 1921 pp. 690-692.

48.—**Flower, S. S.** List of Fishes 1901–1921 with notes on their longevity. Ministry Pub. Works Egypt Cairo Zool. Service 33 1921 26 pp.

49.—**Ford, E.** A Contribution to Our Knowledge of the Life-Histories of the Dogfishes Landed at Plymouth. J. Mar. Biol. Ass. Plymouth 12 1921 pp. 469–505.

50.—**Fossa-Mancini, E.** Alcune considerazioni sulla morfologia e sulla dietologia degli *Ptychodus*. Atti Soc. tosc. sc. nat. Pisa 33 1921 pp. 194–213.

51.—**Fowler, H. W.** Notes on Hemibranchiate and Lophobranchiate Fishes. Proc. Acad. Nat. Sci. Philadelphia 73 1921 pp. 437–448.

52.—**Fowler, H. W.** Fishes from Puntarenas, Costa Rica. Copeia New York 39 1917 pp. 2–4.

52a.—**Fowler, H. W.** The Genus *Cryptotomus* Cope. Copeia New York 14 1915 p. 3.

53.—**Franz, V.** Einige Hauptpunkte in der Organisation der Mormyriden. Biol. Centralbl. Leipzig 40 1920 pp. 1–15.

54.—**Gianferrari, L.** Esperienze d'alimentazione con timo e milza su avannotti di *Salmo irideus* (Nota preliminare). Atti Soc. ital. sc. nat. Milano 59 1921 pp. 232–240.

55.—**Gianferrari, L.** Sull'azione del LiCl nello sviluppo embrionale di *Salmo lacustris* ed *irideus* (casi di monoftalmia e di ciclopia). Natura Milano 12 1921 pp. 163–178.

56.—**Gilchrist, J. D. F.** Observations on living Fishes brought by H.M.S. "Challenger" from Tropical East Africa to Cape Waters. Trans. R. Soc. S. Africa Cape Town 10 1921 pp. 23–26.

57.—**Gilchrist, J. D. F.** The Reproduction of Deep-sea Fishes. Ann. Mag. Nat. Hist. London Ser. 9 7 1921 pp. 173–177 pl. i.

58.—**Goetsch, W.** Hautknochenbildungen bei Fischen. II–V. Zool. Jahrb. Jena Abt. f. Anat. 42 1921 pp. 435–528 pls. xix–xxiii.

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59.—**Hansen, H.** Anatomie und Entwicklung der Zyklostomenzähne unter Berücksichtigung ihrer phylogenetischen Stellung. Jenaische Zs. Natw. 56 1919 pp. 85–118 pls. v–viii.

60.—**Harvey, E. N.** A Fish, with a Luminous Organ, designed for the growth of luminous Bacteria. Science New York N.Y. 53 1921 pp. 314–315.

61.—**Hennig, E.** Ein *Cladodus*—Fund im mitteldeutschen Devon. Centralbl. Min. Stuttgart 1920 pp. 16–21.

62.—**Hensen, V.** Die treibenden Fischeier und Fischlarven der westlichen Ostsee vom 19 März bis anfang November 1912. Wiss. Meeresunters. Kiel 18 1916–1920 pp. 157–184, 433–437.

63.—**Hora, S. L.** Notes on Fishes in the Indian Museum. I. On a new Genus of Fish closely resembling *Psilorhynchus*, McClelland. Rec. Ind. Mus. Calcutta 22 1921 pp. 13–17.

64.—**Hora, S. L.** Notes on Fishes in the Indian Museum. II. On a new Species of *Nemachilus* from the Nilgiri Hills. Rec. Ind. Mus. Calcutta 22 1921 pp. 19–21.

65.—**Hora, S. L.** Notes on the occasional Absence of the Paired Fins in Freshwater Fishes, with some Observations on the two Apodal Genera *Channa*, Gronow and *Apua*, Blyth. Rec. Ind. Mus. Calcutta 22 1921 pp. 27–32.

66.—**Hora, S. L.** Fish and Fisheries of Manipur with some Observations on those of the Naga Hills. Rec. Ind. Mus. Calcutta 22 1921 pp. 165–214 pls. ix–xii.

67.—**Hora, S. L.** Indian Cyprinoid Fishes belonging to the Genus *Garra*, with Notes on related Species from other Countries. Rec. Ind. Mus. Calcutta 22 1921 pp. 633–687 pls. xxiv–xxvi.

68.—**Hora, S. L.** On some new or rare Species of Fish from the Eastern Himalayas. Rec. Ind. Mus. Calcutta 22 1921 pp. 731–744 pl. xxix.

69.—**Hornyold, A. G.** Determinación de la edad en las Anguilas del río Urumea. Trab. Real. Soc. Ocean, Guipuzcoa 1921 27 pp.

70.—Hornoyold, A. G. Algunas observaciones sobre la anguila en Mallorca. Bol. Pesca Madrid 1918 (Jan.-Feb.) 63 pp.

71.—Hornoyold, A. G. Algunas observaciones sobre la anguila en Palma de Mallorca. Bol. Pesca Madrid 1920 (Feb.-March) 128 pp.

72.—Hornoyold, A. G. El crecimiento de la anguila en relación con el de sus escamas. Bol. Pesca Madrid 1920 (Aug.-Dec.) 23 pp.

73.—Hornoyold, A. G. Las anguilas de las estancas de Alcañiz y Chiprana. Bol. Pesca Madrid 1921 (Jan.-Feb.-March) 8 pp.

74.—Hornoyold, A. G. Determinación de la edad en algunas anguilas plateadas (maresas) de la Albufera de Valencia. An. Inst. Gen. de Valencia 1921 27 pp. 12 pls.

Hubbs, C. L. *vide* Jordan, D. S.

75.—Hubbs, C. L. Notes on Hybrid Sunfishes. Aquatic Life Philadelphia 5 1920 pp. 101-103.

76.—Hubbs, C. L. Description of a new Sciaenoid Fish from Santa Catalina Island, California. Occ. Papers Mus. Zool. Ann Arbor Mich. 92 1921 3 pp.

77.—Hubbs, C. L. The Latitudinal Variation in the number of vertical Fin-rays in *Leptocottus armatus*. Occ. Papers Mus. Zool. Ann Arbor Mich. 94 1921 7 pp.

78.—Hubbs, C. L. Notes on a small Collection of Fishes from Kamerun, West Africa. Occ. Papers Mus. Zool. Ann Arbor Mich. 95 1921 3 pp.

79.—Hubbs, C. L. Description of a new Genus and Species of Goby from California with Notes on related Species. Occ. Papers Mus. Zool. Ann Arbor Mich. 99 1921 5 pp.

80.—Hubbs, C. L. Notes on the Pipe-Fishes of California. Occ. Papers Mus. Zool. Ann Arbor Mich. 100 1921 4 pp.

81.—Hubbs, C. L. The Ecology and Life-history of *Amphigonopterus aurora* and other Viviparous Perches of California. Biol. Bul. Wood's Hole Mass. 40 1921 pp. 181-209.

82.—Hubbs, C. L. Geographical Variation of *Notemigonus crysoleucas*—an American Minnow. Trans. Ill. State Acad. Sci. 11 1918 pp. 147-151.

83.—Hubbs, C. L. An Ecological Study of the Life-History of the Fresh-water Atherine Fish *Labidesthes sicculus*. Ecology New York 2 1921 pp. 262-276.

84.—Hubbs, C. L. Remarks on the Life-History and the Scale Characters of American Mulletts. Trans. Amer. Microsc. Soc. Menasha Wis. 40 1921 pp. 26-27.

85.—Hubbs, C. L. A Note on Unilateral Reactions of the Melanophores of the Head in Fishes. Amer. Nat. New York 55 1921 pp. 286-288.

86.—Hubbs, C. L. Supplementary Notes on Flounders from Japan with Remarks on the Species of *Hippoglossoides*. Annot. Zool. Jap. Tōkyō 9 1918 pp. 369-376.

87.—Hubbs, C. L. Notes on Three Clupeoid Fishes collected by Edmund Heller in San Felipe Bay, Gulf of California. Proc. Biol. Soc. Washington 34 1921 pp. 47-48.

Hughes, S. P. *vide* Norris, H. W.

Huntsman, A. G. *vide* Willey, A.

88.—Huntsman, A. G. The Fishes of the Bay of Fundy. Contr. Canad. Biol. Ottawa 1921 (1922) 24 pp.

89.—Hutton, J. A. Wye Salmon; Results of Scale Reading, 1920. Salmon and Trout Mag. London 1921 pp. 1-30.

90.—Ishiwara, Y. On Some Fossil Shark-Teeth from the Neogene of Japan. Sci. Rep. Tohoku Imp. Univ. Sendai Ser. 2 5 1921 No. 3 pp. 61-74 pls. x-xii.

91.—Jacobshagen, E. Die Homologie der Wirbeltierkiemen. Jenaische Zs. Natw. 57 1920 pp. 87-142 pls. vi-vii.

92.—Jenkinson, J. W. Growth, variability and correlation in young Trout. Biometrika Cambridge 8 1911-1912 pp. 444-455.

93.—Johansen, A. C. On the Summer-Spawning Herring (*Clupea harengus* L.) of Iceland. Medd. Havunders Kjöbenhavn Ser. Fisk. 6 1921 No. 3 pp. 1-40.

94.—Johansen, A. C. The Atlanto-Scandian Spring Herring Spawning at the Faroes. Medd. Havunders Kjöbenhavn Ser. Fisk. 6 1921 No. 4 pp. 1-10.

95.—John, O. O. smyslových ústrojích v postranni soustavě mladých úhořů (monté). SitzBer. Böhm. Ges. Wiss. Prag. 1914 No. 1 43 pp. 2 pls.

96.—Johnsen, S. Om de atlantiske fiskearters optraeden ned vor kyst. Naturen Bergen 45 1921 pp. 289-302, 329-346.

97.—Johnsen, S. Ichthyologiske notiser. I. Bergens Mus. Aarb. 1918-1919 (1921) pt. 2 No. 6 95 pp. 1 pl.

98.—Jordan, D. S. The Fish Fauna of California Tertiary. Stanford Univ. Pub. Biol. Sci. California 1 1921 pp. 237-300 pls. i-lvii.

99.—Jordan, D. S. Description of Deep-Sea Fishes from the Coast of Hawaii, killed by a Lava Flow from Mauna Loa. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 643-656.

100.—Jordan, D. S. An Ancient Moonfish. Scientific Monthly 1920 pp. 470-473.

101.—Jordan, D. S. The Miocene Shore-Fishes of California. Scientific Monthly 1921 pp. 459-463.

101a.—Jordan, D. S. Changes in names of American Fishes. Copeia New York 49 1917 pp. 85-89.

102.—Jordan, D. S. and Hubbs, C. L. Studies in Ichthyology. A monographic Review of the Family of Atherinidae or Silversides. Stanford Univ. Publ. Biol. Sci. California 1919 87 pp. 12 pls.

103.—Jugeat, F. Description d'une Raie squatiniforme. Bul. Muséum Paris 1921 pp. 45-47.

104.—Kendall, W. C. An Annotated Catalogue of the Fishes of Maine. Proc. Portland Soc. Nat. Hist. Portland Me. 3 pt. 1 1914 pp. 1-198.

105.—Kindred, J. E. The Chondrocranium of *Syngnathus fuscus*. J. Morph. Philadelphia 35 1921 pp. 425-456.

106.—Klaauw, C. J. van der. *Scymnorhinus licha* (Bonnaterre). Tijdschr. Ned. Dierk. Ver. Helder (2) 18 1921 pp. 104-109.

107.—Koelz, W. Description of a new Cisco from the Great Lakes. Occ. Paprs. Mus. Zool. Ann Arbor Mich. 104 1921 4 pp.

108.—Kolmer, W. Über den Befund einer zweiten Linse (Spontanlentoidbildung) im Auge eines Welses. Arch. EntwMech. Leipzig 46 1920 pp. 1-3.

109.—Kyle, H. M. The Asymmetry, Metamorphosis and Origin of Flatfishes. Phil. Trans. R. Soc. London Ser. B 211 1921 pp. 75-129 pls. iv-x.

110.—Ladreyt, F. Sur l'atrophie pigmentaire du foie chez *Scyllium catulus* Cuv. Bul. Inst. Ocean. Monaco 388 1921 8 pp.

111.—Ladreyt, F. Sur la valeur morphologique et l'évolution fonctionnelle des constituants cellulaires dans les éléments figurés du sang et les cellules absorbantes ou glandulaires de certains Sélaciens (*Scyllium*, *Raja*) et Invertébrés marins (*Ciona*, *Sipunculus*, *Octopus*, etc.) Bul. Inst. Ocean. Monaco 387 1921 16 pp.

112.—Lahille, F. Enumeración de los Peces Cartilaginosos Plectognatos y Gimnotidos encontrados en las Aguas Argentinas. Minist. Agric. Nación dir. lab. invest. agric.-ganad. Buenos Aires 900 1921 41 pp.

113.—Lamont, A. Variations in the Afferent Branchial Arteries of the Skate. Proc. R. Physical Soc. Edinburgh 20 1921 pp. 236-240.

114.—Lebour, M. V. The Larval and Post-Larval Stages of the Pilchard, Sprat and Herring from Plymouth District. J. Mar. Biol. Ass. Plymouth 12 1921 pp. 427-457.

115.—Lebour, M. V. The Food of Young Clupeoids. J. Mar. Biol. Ass. Plymouth 12 1921 pp. 458-467.

116.—Legendre, J. Biologie de la Perche malgache. C. R. Acad. Sci. Paris 172 1921 pp. 1003-1004.

117.—Léger, L. et Stankovitch, S. Fécondation artificielle et développement de l'Apron (*Aspro asper* L.). C. R. Acad. sci. Paris 173 1921 pp. 663-665.

- 118.—Leigh-Sharpe, W. H. The Comparative Morphology of the Secondary Sexual Characters of Elasmobranch Fishes. The Claspers, Clasper Siphons, and Clasper Glands. Memoir II. J. Morph. Philadelphia 35 1921 pp. 359-380.
- 119.—Leriche, M. L'âge du gravier fossilifère d'Elsloo (Limbourg hollandais), d'après sa faune ichthyologique. —La position du Boldérien dans le néogène de la Belgique. Bul. Soc. Belge Geol. 30 1920 pp. 101-115.
- 120.—Leriche, M. Sur les restes de Poissons remaniés dans le Néogène de la Belgique.—Leur signification au point de vue de l'histoire géologique de la Belgique pendant le Tertiaire supérieur. Bul. Soc. Belge Geol. 30 1920 pp. 115-120.
- 121.—Lodovico di Caporiacco. Revisione delle specie Mediterranee della famiglia "Labridae." Atti Soc. ital. sc. nat. Milano 60 1921 pp. 49-101.
- 122.—Lubosch, W. Vergleichende Anatomie der Kaumuskeln der Wirbeltiere, in fünf Teilen. 2. Die Kaumuskeln der Knochenfische, Ligamentum maxillomandibulare, Wesen der Streptognathie und Genese des Squamosodentalgelenkes. Jenaische Zs. Natw. 54 1917 pp. 277-332.
- 123.—Mayer, P. Über die Lymphgefäße der Fische und ihre mutmassliche Rolle bei der Verdauung. Jenaische Zs. Natw. 55 1917/19 pp. 125-174 pls. vi-viii.
- 124.—McCulloch, A. R. Studies in Australian Fishes No. 7. Rec. Austr. Mus. Sydney 13 1921 pp. 123-142 pls. xxi-xxiv.
- 125.—McCulloch, A. R. Notes and Illustrations of Queensland Fishes, No. 2. Mem. Queensland Mus. Brisbane 7 1921 pp. 164-178 pls. viii-xi.
- 126.—McCulloch, A. R. Notes on, and Descriptions of Australian Fishes. No. 2. Proc. Linn. Soc. N.S. Wales Sydney 46 1921 pp. 457-472 pls. xxxvii-xli.
- 127.—Meek, A. Northumberland Trawling Experiments. Dove Marine Lab. Rep. 10 1921 pp. 8-76.
- 128.—Menzies, W. J. M. Notes on the Salmon of Thurso Bay: May-September, 1920. Fish. Board. Scotland Salmon Fisheries 1921 No. II pp. 13-22 2 pls.
- 129.—Milewski, A. W. Zur Biologie, Morphologie und Anatomie der lebendgebärenden Zahnkarpfen. Intern. Rev. Hydrobiol. Leipzig 8 1920 pp. 592-625.
- 130.—Milewski, A. Zur Elektrobiologie des Zitterrochenes. Schr. Z.S.B. für Meereskunde Hamburg 1920 pp. 97-110.
- 131.—Milewski, A. W. Neues von der Scholle (*Pleuronectes platessa* L.). Die Rassen der Scholle.—Die neuesten Feststellungen über die Wanderbewegungen der Scholle. Intern. Rev. Hydrobiol. Leipzig 8 1919 pp. 468-476.
- 132.—Moodie, R. L. Microscopic examination of a fossil fish brain. J. Comp. Neur. Psych. Philadelphia 32 1920 pp. 329-333.
- 132a.—Mowbray, L. L. Description of a *Thunnus* believed to be new. Copeia New York 73 1920 pp. 9-10.
- 133.—Murisier, P. Le pigment mélanique de la Truite (*Salmo lacustris* L.) et le mécanisme de sa variation quantitative sous l'influence de la lumière. Part 2. Le pigment mélanique pendant la vie embryonnaire de la Truite; Part 3. Recherches cytologiques sur le mélanophore de la Truite. Rev. Suisse Zool. Genève 28 1920 pp. 149-193 pl. iii; 28 1921 pp. 243-299.
- Neale, H. V. *vide* Cook, M. H.
- 134.—Nichols, J. T. A list of Turk Islands Fishes, with a Description of a New Flat-fish. Bul. Amer. Mus. Nat. Hist. New York 44 1921 pp. 21-24 pl. iii.
- 135.—Nichols, J. T. A Hawaiian Race of *Carangoides gymnotethoides*. Amer. Mus. Novit. New York 3 1921 2 pp. 1 pl.
- 136.—Nichols, J. T. A New Pomacentrid and Blenny from the Bahamas. Amer. Mus. Novit. New York 26 1921 2 pp.

137.—Nichols, J. T. What Sharks really eat. Nat. Hist. New York 21 1921 pp. 273-278.

138.—Nishi, S. Die Muskeln des Schultergürtels der Chimären und ihre vergleichende Anatomie. Arb. Anat. Inst. Univ. Sendai 5 1920 pp. 26-48.

139.—Norris, H. W. and Hughes, S. P. The Cranial, Occipital and anterior Spinal Nerves of the Dogfish, *Squalus acanthias*. J. Comp. Neur. Psych. Philadelphia 31 1920 pp. 293-402.

140.—Ogilby, J. D. Alteration of Generic Name. Proc. R. Soc. Queensland Brisbane 31 1920 p. 45.

141.—Okkelberg, P. The Early History of the Germ Cells in the Brook Lamprey, *Entosphenus wilderi* (Gage), up to and including the Period of Sex Differentiation. J. Morph. Philadelphia 35 1921 pp. 1-127 12 pls.

142.—Olmsted, J. M. D. The Results of cutting the seventh cranial nerve in *Amiurus nebulosus* (Lesueur). J. Exp. Zool. Philadelphia 31 1920 pp. 369-401 4 pls.

143.—Oshima, M. A Review of the Fishes of the Family Mugilidae found in the Waters of Formosa. Ann. Carnegie Mus. Pittsburg 13 1921 pp. 240-259 pls. xi-xiii.

144.—Oshima, M. A Review of the Fishes of the Family Centriscidae found in the Waters of Formosa. Ann. Carnegie Mus. Pittsburg 13 1921 pp. 260-264 pl. xiii.

145.—Oudemans, A. C. Die Abbildungen der Fliegenden Fische. Arch. Natg. Berlin 86 1920 (1921) Abt. A Heft. 9 pp. 14-18.

146.—Panikkar, N. P. Notes on the two Cichlid Fishes of Malabar, *Etroplus suratensis* and *E. maculatus*. Madras Fish. Dept. Bull. 12 1921 pp. 157-166.

147.—Pardo, L. Una anomalia en la cola de la anguila. Bol. Soc. Esp. Hist. Nat. Madrid 21 1921 pp. 265-267.

148.—Pearse, A. S. The Fishes of Lake Valencia, Venezuela. (University of Wisconsin, Studies in Science, No. 1.) Madison: University of Wisconsin 1920 Med. 8vo 51 pp.

149.—Pearse, A. S. The Distribution and Food of the Fishes of Three Wisconsin Lakes in Summer. (University of Wisconsin, Studies in Science No. 3.) Madison: University of Wisconsin 1921 Med. 8vo 61 pp.

150.—Pearse, A. S. and Achtenberg, H. Habits of Yellow Perch in Wisconsin Lakes. Bul. Bur. Fish. Washington 36 1917-1918 (1921) pp. 297-366.

151.—Pekkola, W. Notes on the Habits, Breeding and Food of some White Nile Fish. Sudan Notes and Rec. Khartoum 2 1919 pp. 112-121.

152.—Pellegrin, J. Les Poissons des Eaux Douces de la Nouvelle-Calédonie. Bul. soc. cent. aquicult. Paris 28 pp. 40-46.

153.—Pellegrin, J. Poissons du Gribingui et de la M'poko recueillis par M. Baudon. Description d'un Characinidé nouveau. Bul. soc. zool. Paris 46 1921 pp. 47-50.

154.—Pellegrin, J. Les Poissons des eaux douces de l'Afrique du Nord Française, Maroc, Algérie, Tunisie, Sahara. Mem. Soc. Sc. Nat. Maroc. Paris 1 1921 pp. 1-216.

155.—Pellegrin, J. Sur des otolithes subfossiles de Poissons du Sahara méridional et leur signification. C. R. Acad. sci. Paris 172 1921 pp. 774-776.

156.—Pellegrin, J. Poissons de Guinée française rapportés par M. P. Chabanaud. Bul. Muséum, Paris 1921 pp. 404-405.

157.—Peterson, C. G. J. On the Stock of Plaice in relation to the intensive fishing of the present times in the Beltsea and other waters. Rep. Danish Biol. St. Copenhagen 27 1920 (1921) 17 pp.

Peyer, B. *vide* Stromer, E.

158.—Phillipps, W. J. Notes on the Edible Fishes of New Zealand. N. Zealand J. Sci. Tech. Wellington 4 1921 pp. 114-125.

159.—Pieragnoli, L. Due pesci pliocenici. Riv. ital. paleont. Parma 27 1921 pp. 11-14 pls. i-ii.

160.—Pieragnoli, L. Otoliti plioceniche della Toscana. Riv. ital. paleont. Parma 25 1919 pp. 21-44 2 pls.

161.—Petit, G. Observations sur certains Poissons des côtes de Madagascar, présentant une adaptation à la locomotion terrestre. *Bul. Muséum Paris* 1921 pp. 216–220.

162.—Plate, L. Fauna ceylanica. Untersuchungen zur Fauna Ceylons nach den Sammlungen von L. Plate. II. Übersicht über biologische Studien auf Ceylon. *Jenaische Zs. Natw.* 54 1916 pp. 12–17.

163.—Popta, C. M. L. Dritte Fortsetzung der Beschreibung von neuen Fischarten der Sunda-Expedition. *Zool. Meded. Leiden* 6 1921 pp. 203–214.

164.—Portmann, G. Recherches sur la physiologie du sac et du canal endolymphatiques. Valeur fonctionnelle de l'organe endolymphatique des Sélaciens. *C. R. soc. biol. Paris* 85 1921 pp. 1070–1072.

165.—Portmann, G. Recherches sur la sac et le canal endolymphatiques. Organe endolymphatique de quelques Téléostéens. *C. R. soc. biol. Paris* 84 1921 pp. 510–512.

166.—Powers, E. B. Experiments and Observations on the Behavior of Marine Fishes toward the Hydrogen Concentration of the Sea Water in Relation to their migratory Movements and Habitat. *Publ. Puget Sound Biol. St. Seattle* 3 No. 57 22 pp.

167.—Ramalho, A. Sur l'appareil surrénal des Téléostéens. *C. R. soc. biol. Paris* 84 1921 pp. 589–591.

168.—Regan, C. T. New Fishes from Deep Water off the Coast of Natal. *Ann. Mag. Nat. Hist. London Ser. 9* 1921 pp. 412–420.

169.—Regan, C. T. Three new Fishes from South Africa collected by Mr. H. W. Bell Marley. *Ann. Mus. Durban* 3 1921 pp. 1–2.

170.—Regan, C. T. The Cichlid Fishes of Lakes Albert Edward and Kivu. *Ann. Mag. Nat. Hist. London Ser. 9* 1921 pp. 632–639.

171.—Regan, C. T. The Cichlid Fishes of Lake Nyassa. *Proc. Zool. Soc. London* 1921 pp. 675–727 pls. i–vi.

172.—Reid, A. H. The Trout in South African Waters. *S. Afric. J. Nat. Hist. Pretoria* 2 1920 pp. 258–277.

173.—Remotti, E. Variazioni di peso specifico durante lo sviluppo delle uova di Teleostei di superficie e di profondità. *Atti Acc. Lincei Roma* 30 1921 pp. 27–30.

174.—Rendahl, H. Egendomlig tandbyggad pos en flatfisk. *Fauna och Flora Uppsala* 16 1921 pp. 182–189.

175.—Rendahl, H. The fishes of the Juan Fernandez Islands. *The Nat. Hist. of Juan Fernandez and Easter Island*. Ed. by C. Skottsberg 3 Pt. 1 Uppsala 1921 pp. 49–58.

176.—Rendahl, H. The fishes of Easter Island. *The Nat. Hist. of Juan Fernandez and Easter Island*. Ed. by C. Skottsberg 3 Pt. 1 Uppsala 1921 pp. 59–68.

177.—Rendahl, H. Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia, 1910–13. XXVIII. Fische. *K. Svenska Vet. Ak. Handl. Stockholm* 61 No. 9 24 pp.

178.—Richards, A. and Thompson, J. T. The Migration of the Primary Sex-Cells of *Fundulus heteroclitus*. *Biol. Bul. Wood's Hole Mass.* 40 1921 pp. 325–340 4 pls.

179.—Ridewood, W. G. On the Calcification of the Vertebral Centra in Sharks and Rays. *Phil. Trans. R. Soc. London Ser. B* 210 1921 pp. 311–407.

Robinson, R. K. *vide* Almy, L. H.

180.—Roule, L. Sur un nouveau poisson abyssal (*Scombrobrax heterolepis*, nov. gen. nov. sp.) pêché dans les eaux de l'île Madère. *C. R. Acad. sci. Paris* 172 1921 pp. 1534–1536.

181.—Roule, L. Sur les changements périodiques d'habitat du Thon commun (*Orcynus thynnus*) et sur leur liaison avec les conditions de milieu. *C. R. Acad. sci. Paris* 173 1921 pp. 1418–1419.

182.—Roule, L. et Angel, F. Sur les Poissons de la famille des Diretmidés et leur place dans la classification. *C. R. Acad. sci. Paris* 172 1921 pp. 1207–1208.

183.—Roule, L. et Angel, F. Notice préliminaire (IIe) sur les larves et les alevins de Poissons recueillis par S.A.S. le Prince de Monaco dans ses croisières de 1896 à 1901 (inclus.) Bul. Inst. Ocean. Monaco 397 1921 8 pp.

184.—Rosenkrantz, A. Craniakalk fra kjøbenhavns Sydhavn. [Calcaire à Crania du port sud de Copenhague.] Com. Paleont. Mus. Mineral. Geol. Univ. Copenhague 16 1920 pp. 1-68, 69-79 2 pls.

185.—Schaefer, J. G. Über den Lagere-flextonus von *Raja clavata*. Ein Beitrag zur Kenntnis der tierischen Hypnose. Biol. Centralbl. Leipzig 41 1921 pp. 289-296.

186.—Schaefer, J. G. Beiträge zur Physiologie des Farbenwechsels der Fische. I. Untersuchungen am Pleuronectiden. Arch. ges. Physiol. Berlin 188 1921 pp. 25-48.

187.—Scheuring, L. Beobachtungen und Betrachtungen über die Beziehungen der Augen zum Nahrungserwerb bei Fischen. Zool. Jahrb. Jena Abt. f. allg. Zool. 38 1921 pp. 113-136.

188.—Schiche, O. E. Reflexbiologische Studien an Bodenfischen. I. Beobachtungen an *Amiurus nebulosus* Les. Zool. Jahrb. Jena Abt. f. allg. zool. 38 1921 pp. 49-112 pl. vi.

189.—Schmidt, J. Racial Investigations. V. Experimental Investigations with *Zoarces viviparus* L. C. R. Lab. Carlsberg Copenhagen 14 1920 No. 9 14 pp.

190.—Schmidt, J. Racial Investigations. VI. Statistical Investigations on Inheritance in *Zoarces viviparus* L. C. R. Lab. Carlsberg Copenhagen 14 1921 No. 11 60 pp.

191.—Schmidt, J. Racial Investigations. VII. Annual Fluctuations of Racial Characters in *Zoarces viviparus* L. C. R. Lab. Carlsberg Copenhagen 14 1921 No. 15 24 pp.

192.—Schmidt, J. Racial Investigations. VIII. The Numerical Signification of Fused Vertebrae. C.R. Lab. Carlsberg Copenhagen 14 1921 No. 16 5 pp.

193.—Schmidt, J. Contributions to the knowledge of the Young of the Sun-

Fishes (*Mola* and *Ranzania*). Medd. Havunders Kjöbenhavn Ser. Fisk. 6 1921 No. 6 pp. 1-13 pl. i.

194.—Schmidt, J. New Studies of Sun-fishes made during the "Dana" Expedition, 1920. Nature London 107 1921 pp. 76-79 figs.

195.—Schnurmann, F. Untersuchungen an Elritzen über Farbenwechsel und Lichtsinn der Fische. Zs. Biol. München 71 1920 pp. 69-98.

196.—Seeberger, von X. Toxische von Brenneiruckständen auf Fische. Schweiz.-Arch. Thierheilk. Zurich 63 1921 pp. 478-490.

197.—Snyder, J. O. Notes on some Western Fluvial Fishes described by Charles Girard in 1856. Proc. U.S. Nat. Mus. Washington 59 1921 pp. 23-28.

198.—Snyder, J. O. Three new Whitefishes from Bear Lake, Idaho and Utah. Bul. Bur. Fish. Washington 36 1917-1918 (1921) pp. 1-9.

199.—Sokolowsky, A. Biologische Betrachtungen über die Armflosser oder Anglerfische (Pediculati). Schr. Z.S.B. für Meereskunde Hamburg 1920 pp. 66-71.

200.—Sowerby, A. de C. On a new Silurid Fish from the Yalu River, South Manchuria. Proc. U.S. Nat. Mus. Washington 60 1921 pp. 1-2.

Stankovitch, S. *vide* Léger, L.

201.—Stanton, T. W. and Vaughan, T. W. The Fauna of the Cannonball Marine Member of the Lance Formation. Prof. Paprs. U.S. Geol. Surv. Washington 128a 1920 pp. 1-49 pls. i-ix.

202.—Starks, E. C. A Key to the Families of Marine Fishes of the West Coast. California State Fish and Game Comm. Fish Bull. 5 1921 16 pp.

203.—Steindachner, F. Ichthyologische Beiträge 19. Anz. Ak. Wiss. Wien 54 1917 pp. 228-229.

204.—Stensiö, E. A. Triassic Fishes from Spitzbergen. Part I. Vienna 1921 4to VII and 307 pp. 35 pls.

205.—Stensiö, E. A. Notes on some Fish Remains Collected at Hornsund by the Norwegian Spitzbergen Expedition in 1917. Norsk. Geol. Tidsskr. Christiania 5 1918 pp. 75-78.

206.—Storow, B. Herring Investigations. I. Herring Shoals. Dove Marine Lab. Rep. 10 1921 pp. 77-101.

207.—Stoss, H. Die Schlundzähne des Karpfens. Zool. Jahrb. Jena Abt. f. Anat. 42 1921 pp. 411-434 pl. xviii.

208.—Stromer, E. Mitteilungen über Wirbeltierreste aus dem Mittelpliocän des Natrontales (Ägypten). 4. Fische. a. Dipnoi: *Protopterus*. Zs. D. Geol. Ges. Berlin B 66 1914 pp. 420-425.

209.—Stromer, E. und Peyer, B. Über rezente und triassische Gebisse von Ceratodontidae. Zs. D. Geol. Ges. Berlin A 69 1917 pp. 1-80 pls. i-iv.

210.—Supino, F. Malattie e nemici die pesci osservati in Lombardia. Natura Milano 12 1921 pp. 190-204.

211.—Tanaka, S. Figures and Descriptions of the Fishes of Japan. 31 pp. 559-582 pls. cxlii-cxliv Tokyo 1921.

212.—Thienemann, A. Beiträge zur Kenntnis der westfälische Süßwasserfauna. V. Die Flunder im Dortmund-Emskanal. Jahresber. Prov. Ver. Wiss. Münster 43 1915 pp. 146-148.

213.—Thienemann, A. Über einige Schwedische Coregonen mit Bemerkungen über die Systematik der Gattung *Coregonus* und die Wege und Ziele der künftigen Coregonenforschung. Arch. Natg. Berlin 87 1921 Abt. A Heft. 2 pp. 170-195.

214.—Thilo, G. Das Maulspitzen der Fische. Das Entstehen und Vergehen seiner Mechanik. Biol. Centralbl. Leipzig 40 1920 pp. 216-238.

Thompson, J. T. vide Richards, A.

215.—Thomson, G. M. and Anderton, T. History of the Portobello Marine Fish-Hatchery and Biological Station. New Zealand Board Sci. Art. Bull. 2 1921 131 pp.

216.—Tiffany, L. H. Algal Food of the Young Gizzard Shad. Ohio J. Sci. Columbus 21 1921 pp. 113-122.

217.—Trachtenberg, H. L. The Analysis of the Results of Professor Johannes Schmidt's Diallel Crossings with Trout. J. Genetics Cambridge 11 1921 pp. 75-78.

218.—Tracy, H. C. The membranous Labyrinth and its Relation to the Precoelomic Diverticulum of the Swimbladder in Clupeoids. J. Comp. Neur. Psych. Philadelphia 31 1920 pp. 219-257.

219.—Uhlmann, E. Studien zur Kenntnis des Schädels von *Cyclopterus lumpus* L. 1. Teil: Morphogenese des Schädels. Jenaische Zs. Natw. 57 1921 pp. 1-314 pls. xvi & xvii.

220.—Uhlmann, E. Studien zur Kenntnis des Schädels von *Cyclopterus lumpus* L. 2. Teil: Entstehung des Schädelknochen. Jenaische Zs. Natw. 57 1921 pp. 315-370.

Vaughan, T. W. vide Stanton, T. W.

221.—Vinciguerra, D. Intorno ai *Regalecus* del Golfo di Genova e di altre località italiane. Ann. Museo Civ. st. nat. Genova Ser. 3a 8 (48) 1918 17 pp. 1 pl.

222.—Vinciguerra, D. Aggiunta alla nota "Intorno ai *Regalecus*." Ann. Museo Civ. st. nat. Genova Ser. 3a 8 (48) 1918 2 pp.

223.—Vinciguerra, D. Sulla presenza della *Rhina ancylostoma*, Bl., nel mar Rosso. Ann. Museo Civ. st. nat. Genova Ser. 3a 8 (48) 1919 3 pp.

224.—Vinciguerra, D. Descrizione di tre nuove specie di pesci delle acque dolci di Grecia. Ann. Mus. Civ. st. nat. Genova Ser. 3a 9 (49) 1921 10 pp. pl. iv.

225.—Vinciguerra, D. Pesci raccolti dalla spedizione de Filippi nell' Asia Centrale. Ann. Mus. Civ. st. nat. Genova Ser. 3a 7 (47) 1916 27 pp. pl. v.

226.—Waite, E. R. Catalogue of the Fishes of South Australia. Rec. S. Aust. Mus. Adelaide 2 1921 pp. 1-199.

227.—Waite, E. R. and Hale, H. M.—Review of the Lophobranchiate Fishes. (Pipe-Fishes and Sea-Horses) of South Australia. Rec. S. Aust. Mus. Adelaide 1 1921 pp. 293-324.

228.—Ward, H. B. Some Features in the Migration of the Sockeye Salmon and their practical Significance. Proc. Amer. Fish. Soc. 1920 pp. 387-426.

229.—Ward, H. B. Some of the Factors controlling the Migration and Spawning of the Alaska Red Salmon. Ecology New York 2 1921 pp. 235-254.

230.—Watson, D. M. S. On the Coelacanth Fish. Ann. Mag. Nat. Hist. London Ser. 9 8 1921 pp. 320-337.

231.—Weber, M. Revision der Indo-Australischen Arten von *Atherina*. Zool. Meded. Leiden 6 1921 pp. 45-53.

232.—Weber, M. and Beaufort, L. F. de. Contributions to the knowledge of Indo-Australian Fishes. Zool. Meded. Leiden 6 1921 pp. 64-72.

233.—Weiss, O. Wachstum und Zellgrösse bei *Cyprinus carpio* L. Zool. Jahrb. Jena Abt. f. allg. zool. 38 1921 pp. 137-168.

234.—Wettersdal, P. Beiträge zur Morphologie des Gefässsystems. Die Entwicklung der Gefässe in der Brustflosse bei *Squalus acanthias* nebst Bemerkungen über die Entwicklung der Arterien der vorderen Extremitäten in allgemeinen. Anat. Hefte Wiesbaden 1 Abt. 59 1921 pp. 385-519.

235.—Willem, V. Synchronisme des mouvements respiratoires et des pulsations cardiaques chez les Poissons. Bul. Acad. roy. Bruxelles Ser. 5 7 1921 pp. 508-533.

236.—Willey, A. and Huntsman, A. G. Faunal Notes from the Atlantic Biological Station (1920). Canad. Field Nat. Ottawa 35 No. 1 pp. 1-7.

237.—Wintrebert, P. La neuromérie du cerveau chez les Selaciens et le problème de la métamérisation de la tête. C. R. soc. biol. Paris 84 1921 pp. 191-194.

Wohlgemuth *vide* Demoll.

238.—Woodward, A. S. Observations on some Extinct Elasmobranch Fishes. Proc. Linn. Soc. London 1920-1921 pp. 29-39.

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XIV. REPTILIA AND BATRACHIA

ARRANGED BY

JOAN B. PROCTER.

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1.—Adler, L. Metamorphosestudien an Batrachierlarven. II. Der Einfluss überreifer Eier. Arch. EntwMech. 43 1917 pp. 343–360 1 pl.

2.—Alder, L. Experimentelle Untersuchungen über die sexuelle Differenzierung bei *Rana temporaria*. I. Mitteilung. Der Wirkungsmechanismus überreifer Eier. Arch. ges. Physiol. Berlin 183 1920 pp. 23–39 pls. 1–2.

3.—Alexander, W. B. The Vertebrate Fauna of Houtman's Abrolhos (Abrolhos Islands), Western Australia. J. Linn. Soc. (Zool.) 34 1921 pp. 457–486 (Reptilia p. 460 & 479 Batr. p. 462).

4.—Allen, B. M. The results of earliest removal of the thymus glands in *Rana pipiens* tadpoles. J. Exp. Zool. Philadelphia 30 1920 pp. 189–200 text-fig. 1.

5.—Allen, B. M. The Parathyroid Glands of Thyroidless *Bufo* larvae. J. Exp. Zool. Philadelphia 30 1920 pp. 201–210.

6.—Andrews, C. W. On a New Chelonian from the Kimmeridge Clay of Swindon. Ann. Mag. Nat. Hist. London (9) 7 1921 pp. 145–153.

7.—Andrews, C. W. On some remains of a Theropodous Dinosaur from the Lower Lias of Barrow-on-Soar. Ann. Mag. N. H. (9) 8 1921 pp. 570–576 2 figs.

8.—Angel, F. Contribution à l'étude des Chamæleons de Madagascar. Bull. Mus. Hist. nat. Paris 1921 (1) pp. 328–331 figs. 1–6. Section II pp. 406–412 figs. 7–11.

9.—Angel, F. Sur des Reptiles de la Région du Gribingui. Bull. Mus. Hist. nat. Paris 1921 (2) pp. 141–142.

10.—Angel, F. Sur le développement de *Molge waltii* Mich. (Batracien urodèle) et sur son habitat en Guinée française. C. R. Acad. Sci. Paris 173 (17) 1921 pp. 736–737.

11.—Annandale, N. The Fauna of an Island in the Chilka Lake. Reptiles and Batrachia. Rec. Ind. Mus. Calcutta 22 (4) 1921 pp. 331–333.

12.—Aron, M. Sur l'existence et le rôle d'un tissu endocrinien dans le testicule des Urodèles. C. R. Acad. Sci. Paris 173 (1) pp. 57–59.

13.—Aron, M. Sur le conditionnement des caractères sexuels secondaires chez les Batraciens Urodèles. C. R. Soc. biol. Paris 85 1921 pp. 482–484.

14.—Arlt, T. Die Ausbreitung der Lurcher. Arch. Natg. Berlin Abt. A. 82 pt. 6 1917 pp. 94–151.

15.—Arthaber, G. Studien über Flugsaurien auf Grund der Bearbeitung des wiener exomplares von *Dorygnathus banthensis* Theod. sp. Denk. Akad. Wiss. Wien 97 1921 pp. 391–464 pls. 1–2 text-figs. 1–57.

16.—Atkinson, M., Clark, G. A. et Menzies, J. A. The function of the urinary tubules in the frog. J. Physiol. Cambridge 55 1921 pp. 253–258.

17.—Atsalt, S. R. A snake (*Phyllorhynchus decurtatus*) new to California. Copeia New York No. 96 1921 pp. 38–39.

18.—Baitsell, G. A. A study of the development of connective tissue in the Amphibia. Amer. J. Anat. Philadelphia 28 1921 pp. 447–475 pls. 1–4.

19.—Ballerstedt, M. Zwei grosse, zweizehige Fährten hochbeiniger Bipeden aus dem Wealdensandstein bei Bückeburg. Zs. D. geol. Ges. Berlin B 73 1921 pp. 76–91 text-figs. 1–10.

20.—Barbour, T. Aquatic Skinks and arboreal Monitors. Copeia New York No. 97 1921 pp. 42–44.

21.—Barbour, T. *Sphaerodactylus*. Mem. Mus. Comp. Zool. Harvard Coll. Cambridge Mass. 47 (3) 1921 pp. 217–278 pls. 1–26.

22.—Barbour, T. A New Lizard from Guaymas, Mexico. Proc. New Eng. Zool. Club, Cambridge Mass. 7 1912 pp. 79–80.

23.—Barbour, T. Some Reptiles from Old Providence Island. *Proc. New Eng. Zool. Club Cambridge Mass.* 7 1921 pp. 81–85.

24.—Barbour, T. A New Bornean Lizard. *Proc. New Eng. Zool. Club Cambridge Mass.* 7 pp. 87–89.

25.—Barbour, T. Reptiles and Amphibians from the British Solomon Islands. *Proc. New Eng. Zool. Club Cambridge Mass.* 7 1921 pp. 91–112 pls. 1–6.

26.—Barbour, T. A New *Phrynosoma* from Cerros Island. *Proc. New Eng. Zool. Club Cambridge Mass.* 7 192 pp. 113–115.

27.—Barbour, T. The Florida Pine Snake. *Proc. New Eng. Zool. Club Cambridge Mass.* 7 1921 pp. 117–118.

28.—Barry, D. T. On the path of conduction between auricle and ventricle in the amphibian and reptilian heart. *J. Physiol. Cambridge* 55 1921 pp. 423–428.

Barthélémy, H. *vide* Terroine

Baudot, J. *vide* Collin.

29.—Belogolowy, G. Die Einwirkung parasitären Lebens auf das sich entwickelnde Amphibienei (den „Laichball“). *Arch. EntwMech. Leipzig* 43 1918 pp. 556–681 12 pls.; also Roux, W., remarks thereon pp. 682–693.

30.—Benninghoff, A. Beiträge zur vergleichenden Anatomie und Entwicklungsgeschichte des Amphibienherzens. *Morph. Jahrb. Leipzig* 51 1921 pp. 354–412 text-figs. 1–11.

31.—Bercovitz, Z. et Rogers, F. T. Contributions to the Physiology of the Stomach. LV. The Influence of the Vagi on Gastric Tonus and Mobility in the Turtle. *Amer. J. Physiol. Baltimore* 55 1921 pp. 323–338 figs. 1–4.

32.—Bhattacharya, D. R. Note on the Persistent Oviducts and Abnormal Testes in a Male *Rana tigrina*. *J. & Proc. Asiatic Soc. Bengal* 16 1920–21 pp. 293–296 fig.

33.—Bilski, F. Über Blastophthorie durch Alcohol. Mit Versuchen am Frosch. *Arch. EntwMech. Leipzig* 47 1921 pp. 627–653.

(N-17041 d) q

34.—Bishop, S. C. The Map Turtle *Graptemys geographica* (Lesueur) in New York. *Copeia New York No.* 100 1921 pp. 80–81.

35.—Black, D. The motor nuclei of the cerebral nerves in phylogeny—a study of the phenomena of neurobiotaxis. III. Reptilia. *J. Comp. Neur. Philadelphia* 32 1920 pp. 61–97 12 figs.

36.—Blake, S. F. Sexual differences in Coloration in the Spotted Turtle, *Clemmys guttata*. *Proc. U.S. Nation. Mus. Washington* 59 1921 pp. 463–469 pl. 99.

37.—Blanchard, F. N. A Revision of the King Snakes: Genus *Lampropeltis*. *Bull. U.S. Nat. Mus. Washington* 114 1921 pp. vi + 1–260 figs. 1–78.

38.—Blanchard, F. N. A collection of Amphibians and Reptiles from Northeastern, Washington. *Copeia N. York No.* 90 1921 pp. 5–6.

Bloom, W. *vide* Macht.

39.—Böker, H. Die Entwicklung der Trachea bei *Lacerta agilis*. *Anat. Anz. Jena* 50 1917–18 pp. 452–455.

40.—Bolk, L. Odontological Essays. III. On the Tooth-Glands in Reptiles and their Rudiments in Mammals. *Journ. Anat. Cambridge* 55 1921 pp. 219–234 text-figs. 77–96.

41.—Bolkay, St. J. Über pflanzenund gefteinliebende Lacerten. *Blat. Aquar. Terrar. Stuttgart* 32 1921 pp. 181–184.

42.—Bolkay, St. J. *Lacerta veithi* By; Eine neue Eidechsenart aus Mittelalbanien. *Blatt. Aquar. Terr. Stuttgart* 32 1921 pp. 104–107.

43.—Boschma, H. Neuromerie bei Reptilembryonen. *Acta Zool. Stockholm* 2 1921 pp. 415–429 test-figs. 1–10.

44.—Boulenger, E. G. Experiments on colour-changes of the Spotted Salamander (*Salamandra maculosa*), conducted in the Society's Gardens. *Proc. Zool. Soc. London* 1921 pp. 99–102 2 pls.

45.—Boulenger, G. A. Monograph of the Lacertidae. *Brit. Mus. (N. H.)*, London 2 1921 pp. 1–viii + 1–451.

c 4—2

46.—Boulenger, G. A. Quelques Indications sur la Distribution en Belgique des Batraciens et Reptiles. Ann. Soc. roy. Zool. Malac. Belg. Bruxelles 52 1921 pp. 114-124.

47.—Boulenger, G. A. and Power, J. H. A Revision of the South African Agamas allied to *Agama hispida* and *A. atra*. Trans. Roy. Soc. S. Africa Cape Town 9 1921 pp. 229-287 text-figs. 1-3.

48.—Boulenger, G. A. and Power, J. H. Map showing the Distribution of the Genus *Agama*. Trans. Roy. Soc. S. Africa Cape Town 10 (1) 1921.

49.—Brimley, C. S. Breeding dates of *Amblystoma maculatum* at Raleigh N.C. Copeia N. York No. 93 1921 pp. 26-27.

50.—Brodersen, J. Verhalten der Knorpelzellen des Frosches gegen Aqua destillata, Natronlauge, Salzsäure und Kochsalz in fließenden Lösungen. Anat. Anz. Jena, 49 1916 pp. 225-253.

51.—Brodersen, J. Die Entstehung der Hünefeld-Hensen'schen Bilder im Froschblut bei beschränktem Wasserzusatz. Anat. Anz. Jena 54 1921 pp. 385-397.

52.—Broili, F. Einige Bemerkungen über die Mixosauridae. Anat. Anz. Jena 49 1916 pp. 474-494 text-figs. 1-4.

53.—Broili, F. Unpaare Elemente im Schädel von Tetrapoden. Anat. Anz. Jena 49 1917 pp. 561-576 text-figs. 1-21.

54.—Broili, F. Ein Fund von cf. *Placeras* Lucas in der kontinentalen Trias von Europa. Centralbl. Min. Stuttgart 1921 pp. 339-343 2 text-figs.

55.—Broili, F. and Fischer, E. *Trachelosaurus fischeri* nov. gen. nov. sp. Ein neuer Saurier aus dem Buntsandstein von Bernburg. Jahrb. Geol. Landes Anst. Berlin 37 pt. 1 1918 pp. 359-414 2 pls. 15 text-figs.

56.—Broom, R. On the Structure of the Reptilian Tarsus. Proc. Zool. Soc. London 1921 pp. 143-155 figs.

57.—Broom, R. On some new Genera and Species of Anomodont Reptiles from the Karroo Beds of South Africa. Proc. Zool. Soc. London 1921 pp. 647-674 18 figs.

58.—Bruyn, E. M. M. and Nifferik, C. H. M. Van. Influence du son sur la réaction d'une excitation tactile chez les Grenouilles et les Crapauds. Arch. Néerl. Physiol. Homme & Animal Harlem ser. 3 5 19 pp. 363-379.

59.—Burr, H. S. The Transplantation of the Cerebral Hemispheres of *Amblystoma*. J. Exp. Zool. Philadelphia 30 1920 pp. 159-169 text-figs. 1-9.

60.—Campana, D. del. Nova fossili di chelonio nel miocene superiore di Capudjlar presso Salonicco. Bull. Soc. Geol. Ital. Rome 38 1919 pp. 1-6 1 pl.

61.—Carlson, A. J. and Luckhardt, A. B. Studies on the Visceral Sensory Nervous System. III. Lung Automatism and Lung Reflexes in Reptilia (Turtles: *Chrysemys elegans* and *Malacoclemmys lesueurii*. Snake: *Eutania elegans*. Amer. J. Physiol. Baltimore 54 1920 pp. 261-306 figs 1-24.

62.—Case, E. C. On an endocranial cast from a reptile, *Desmotosuchus spurensis*, from the upper Triassic of Western Texas. J. Comp. Neur. Philadelphia 33 1921 pp. 133-147 9 figs.

63.—Catan, M. A. Absorption du venin de Cobra par le Charbon, et Absorption des venins de *Lachesis* par le Charbon. C. R. Soc. biol. Paris. 84 1921 pp. 168-171.

64.—Champy, C. Sur les corrélations entre les caractères sexuels mâles et les divers éléments du testicule chez les Amphibiens (Étude sur *Triton alpestris*). C. R. Acad. Sci. Paris 172 (8) 1921 pp. 482-484.

65.—Champy, C. Changement expérimental du sexe chez le *Triton alpestris* Laun. C. R. Acad. Sci. Paris 172 (19) 1921 pp. 1204-1207.

66.—Clark, E. R. and E. L. Reactions of cells in the tail of amphibian larvae to injected croton oil (aseptic inflammation). Amer. J. Anat. Philadelphia 27 1920 pp. 221-254 figs. 1-15.

Clark, G. A. vide Atkinson, M.

67.—Clark, H. W. Fresh-water Turtles. A source of Meat Supply. Appendix VII Rep. U.S. Comm. Fish. 1919 Washington 1921 pp. 1-20 pls. i-viii.

- 68.—Cohn, L. Die Drüsen am Munddach der Eidechsen. Arch. Natg. Berlin Abt. A 80 pt. 8 1915 pp. 80–117 1 pl. 11 text-figs.
- 69.—Collin, R. et Bandot, J. Formation choroidienne anormale chez la Grenouille. C. R. Soc. biol. Paris 84 1921 pp. 890–892 fig.
- 70.—Coombs, H. C. Some aspects of the neuro-muscular respiratory mechanism in Chelonians. Amer. J. Physiol. Baltimore 50 1092 pp. 511–519 figs. 1–5.
- 71.—Cords, E. Die Hautmuskeln der Amphibien nebst Bemerkungen über Hautmuskeln im allgemeinen. Zool. Jahrb. Jena Abt. f. Anat. 42 1921 pp. 283–326 text-figs. 1–12.
- 72.—Cotronei, G. Sulla morfologia causale della sviluppo oculare del *Bufo vulgaris*. Att. Acc. Nazion. Lincei Rome 30 1921 pp. 25–26.
- 73.—Coupin, F. Sur les formations choroidiennes des Urodèles. C. R. Soc. biol. Paris 85 1921 pp. 627–628.
- 74.—Courrier, R. Action de L'ingestion de corps thyroïde sur la glande germinative male. C. R. Soc. biol. Paris 85 1921 pp. 484–486.
- 75.—Crew, F. A. E. Sex-Reversal in Frogs and Toads. A Review of the Recorded Cases of Abnormality of the Reproductive System and an Account of a Breeding Experiment. Journ. Genet. Cambridge 11 1921 pp. 141–181.
- 76.—Crew, F. A. E. A Description of certain Abnormalities of the Reproductive System found in Frogs, and a Suggestion as to their possible Significance. Proc. Roy. Phys. Soc. Edinburgh 20 (5) 1921 pp. 241–257 pls. i–xi.
- 77.—Cummins, H. The rôle of Voice and Coloration in Spring Migration and sex recognition in frogs. J. Exp. Zool. Philadelphia 30 1920 pp. 325–343.
- 78.—Daiber, M. Das Bauchrippen-system von *Sphenodon* (*Hatteria*) *punctatus* Gray. Anat. Anz. Jena 53 1920 pp. 371–382 pls. 1–2.
- 79.—Dam, G. P. F. van. Descriptions of new species of *Zonurus* and notes on the species of *Zonurus* occurring in the Transvaal. Ann. Transv. Mus. Pretoria 7 1921 pp. 239–243 4 pls.
- 80.—Dam, G. P. F. van. Description of a new variety of a South African Lizard of the family Geckonidae. Ann. Transv. Mus. Pretoria 7 1921 p. 244 pl. v.
- 81.—Deckert, R. F. Amphibian notes from Dade Co., Florida. Copeia N. York 92 1921 pp. 20–23.
- 82.—Dehorne, A. Sur le processus meiotique dans la spermatogenèse de la Salamandre et du Triton. C. R. Acad. Sci. Paris 172 (8) 1921 pp. 480–481.
- 83.—Demoor, J. Influence des substances extraites du coeur de la Tortue sur le coeur de la Grenouille. C. R. Soc. biol. Paris 85 pp. 1091–1093.
- 84.—Detwiler, S. R. Experiments on the transplantation of limbs in *Amblystoma*. The formation of nerve plexuses and the function of the limbs. J. Exp. Zool. Philadelphia 31 1920 pp. 117–169 figs. 1–22.
- 85.—Detwiler, S. R. and Laurens, H. Studies on the retina. The structure of the retina of *Phrynosoma cornutum*. J. Comp. Neur. Philadelphia 32 1920 pp. 347–356 figs.
- Detwiler, S. R. vide Laurens, H.
- 86.—Döderlein, L. H. P. Betrachtungen über die Entwicklung der Nahrungsaufnahme bei Wirbeltieren. Zoologica Stuttgart 27 [Heft 71] 1921 pp. 1–59 text-figs. 1–31.
- 87.—Dragoiu, J. et Fauré-Fremiet, E. Divers aspects de la cellule hépatique chez les Têtards de *Rana temporaria* nourris avec de la Thyroïde. C. R. Soc. biol. Paris 85 1921 pp. 434–436.
- 88.—Dragoiu, J. et Fauré-Fremiet, E. Étude histologique des phénomènes provoqués chez le Têtard de *Rana temporaria* par l'alimentation thyroïdienne. C. R. Soc. biol. Paris 85 1921 pp. 437–439.
- 89.—Eidman, H. Über Wachstumsstörungen bei Amphibienlarven. Arch. EntwMech. Leipzig 49 1921 pp. 510–537 13 figs.
- 90.—Erdmann, B. Über die Entwicklung der Atrioventrikularklappen bei den Anuren. Morph. Jahrb. Leipzig 51 1921 pp. 339–354 pls. viii–ix figs. 1–4.

91.—Erdmann, R. Das Verhalten der Herzklappen der Reptilien und Mammalier in der Gewebekultur. Arch. EntwMech. Leipzig 48 1921 pp. 571-620 pls. xxiii-xxv text-figs. 1-8.

Fauré-Fremiet *vide* Dragiou, J.

92.—Fejérváry, G. J. von. Remarques sur la position systematique des Genres *Bufavus* et *Ranavus*. Ann. Mus. Nation. Hung. Budapest 18 1920-21 3 pp.

93.—Fejérváry, G. J. von. Kritische Bemerkungen zur Osteologie, Phylogenie, und Systematik der Anuren. Arch. Naturg. Berlin 87 pt. 3 1921 30 pp.

94.—Fejérváry, G. J. v. Über die engeren phyletischen Beziehungen der zur *Rana esculenta*-gruppe gehörenden Formen. Arch. Natg. Berlin Abt. A 87 (10) 1921 pp. 7-18.

95.—Fejérváry, G. J. v. Beiträge zur Kenntnis der Raniden-Fauna Ungarns. Arch. Natg. Berlin Abt. A. 87 (10) 1921 pp. 18-22.

96.—Fejérváry, G. J. v. Quelques observations sur la loi de Dollo et l'épistrophogénèse en considération spéciale de la loi biogénétique de Haeckel. Bull. Soc. Vaud. Sci. Nat. Lausanne 53 1921 pp. 343-372 text-figs. 1-4.

97.—Fejérváry, G. J. Quelques observations nouvelles sur la *Lacerta muralis* Laur. var. *insulanica* de Bedr., en considération spéciale du problème tyrrhénien. Bull. Soc. Vaud. Sci. nat. Lausanne 53 1921 pp. 373-410 pls. 1-2 and map.

98.—Fejérváry-Lágh, A. M. v. Biologische Beobachtungen an europäischen Braunfröschen (*Ranae fuscae*). Verh. zool.-bot. Ges. Wien 1921 pp. 112-139.

99.—Fejérváry-Lágh, A. M. v. Über *Xenopus*-Hybriden. Verhandl. zool.-bot. Ges. Wien 1921 pp. 140-145 text-figs. 1-5.

100.—Fernández - Marcinowski, K. Der Mechanismus des Schlüpfens bei den Amphibien-larven. Biol. zentralbl. Erlangen 41 1921 pp. 423-432.

Fernández - Marcinowski, K. *vide* Scott-Birabén, M. I.

101.—Fernández, K. and M. Sobre la Biología y Reproducción de Algunos Batracios Argentinos. I. Cystignathidae. An. Soc. Cient. Argentina Buenos Aires 91 1921 pp. 97-193 pls. i-iii.

102.—Fessler, F. Zur Entwicklungsmechanik des Auges. Arch. EntwMech. Leipzig 46 1920 pp. 169-201 pls. 9-10 text-fig.

103.—Fischel, A. Beiträge zur Biologie der Pigmentzelle. Anat. Hefte Wiesbaden 1. Abth. 58 1920 pp. 1-136 9 plates.

104.—Fischel, A. Über rückläufige Entwicklung. I. Die Rückbildung der transplantierten Augenlinse. II. Über Umbildung des Hautepithels bei Urodelenlarven. Arch. EntwMech. Leipzig 42 1917 pp. 1-71 4 pls.

Fischer, E. *vide* Broili.

105.—Fitzsimons, F. W. The Snake Park. Port Elizabeth Museum S. Africa 1921 pp. 1-23 illustrated.

106.—Fitzsimons, F. W. Snake-Venom and its effects, especially on other snakes. S. African Journ. Sci. Bulawayo 17 1921 pp. 353-354.

107.—Frémiet, F. and Street, du V. de. Composition chimique de l'oeuf et du tétard de *Rana temporaria*. C. R. Acad. Sci. Paris 173 (15) 1921 pp. 613-616.

108.—Frisch, K. v. Über die Einfluss der Badenfarbe auf die Fleckenzeichnung des Feuersalamanders. Biol. Centralbl. Leipzig 40 1920 390-414 30 figs.

109.—Fuchs, H. Über die Verknöcherung des Innenskeletes am Schädel der Seeschildkröten, nebst Bemerkungen über das geschlossene Schläfendach. Anat. Anz. Jena 52 1919-1920 pp. 353-389 449-479 53 1920 pp. 1-36 353-363 text-figs. 1-24.

110.—Fuse, G. Studien über die Kleinhirnrinde der Wirbeltiere. I. Die japanische Schildkröte. Arb. Anat. Inst. Univ. Sendai Heft 5 1920 pp. 92-131 22 figs.

111.—Fuse, G. Über ein merkwürdiges, langes markloses Nervenbündel im Hirnstamm der *Chelone imbricata*. Arb. Anat. Inst. Univ. Sendai Heft 5 1920 pp. 87-91 6 figs.

112.—Giersberg, H. Eihüllenbildung bei Reptilien, nebst einer Untersuchung über die Entstehung von Bindgewebefasern und Faserstrukturen. Biol. Centralbl. Leipzig **41** 1921 pp. 145–165 4 figs.

113.—Gilmore, C. W. The Fauna of the Arundel Formation of Maryland. Proc. U.S. Nation. Mus. Washington **59** 1921 pp. 581–594 pls. 110–114.

114.—Gilmore, C. W. Vertebrate Faunas of the Ojo Alamo, Kirtland, and Fruitland Formations. Prof. Paprs. U.S. Geol. Survey Washington **98** Q 1916–1917 pp. 279–308 pls. 72–78 text-figs. 1–42.

115.—Gilmore, C. W. *Brachyceratops*, a Ceratopsian Dinosaur from the Two Medicine Formation of Montana, with Notes on Associated Fossil Reptiles. Prof. Paprs. U.S. Geol. Surv. Washington **103** 1917 pp. 1–45 pls. 1–4 text-figs. 1–31.

116.—Greschik, E. Über den Darmkanal von *Ablepharus pannonicus* Fitz. und *Anguis fragilis* L. Anat. Anz. Jena **50** 1917–18 pp. 70–80 1 pl.

117.—Guglielmetti, J. Études sur la curarisation du *Leptodactylus ocellatus* (L.) Gir. VI. Excitabilités musculaires chez *Leptodactylus ocellatus*. J. Physiol. Path. gén. Paris **1919** 21 pp. 74–9 figs. 1–2.

118.—Guglielmetti, J. et Pacella, G. Études sur la curarisation du *Leptodactylus ocellatus* (L.) Gir. IV.—Activité de divers curares. J. Physiol. Path. Gén. Paris **19** 1921 pp. 69–70; V.—Réversibilité de la curarisation. T.c. pp. 71–73.

119.—Gunn, J. W. C. A Note on the Use of the South African Clawed Toad in the Biological Assay of the Digitalis Series. Trans. Roy. Soc. S. Africa Cape Town **10** 1921 pp. 55–56.

120.—Gunn, J. A. and Heathcote, R. St. A. Cellular Immunity: Observations on Natural or Acquired Immunity to Cobra Venom. Proc. Roy. Soc. London ser. B **92** 1921 pp. 81–101.

121.—Hafferl, A. Zur Entwicklungsgeschichte der Kopfgefäße des Gecko (*Platydictylus annularis*). Anat. Hefte Wiesbaden I. Abth. **59** 1921 pp. 1–42 1 plate 7 text-figs.

122.—Häggqvist, G. Über die Entwicklung der querstreifigen Myofibrillen beim Frosche. Anat. Anz. Jena **52** 1919–1920 pp. 389–404 text-figs. 1–5.

123.—Handovsky, H. Ein Alkaloid im Gifte von *Bufo vulgaris*. Arch. exper. Path. Leipzig **86** 1920 pp. 138–158 text-figs. 1–12.

124.—Harrison, I. Note on the Pigmentation of Frogs' eggs. Proc. Linn. Soc. N.S.W. Sydney **46** 1921 pp. 370–373.

125.—Harrison, R. G. Experiments on the lens in *Amblystoma*. Proc. Soc. Exp. Biol. Med. New York **17** 1920 pp. 199–200.

126.—Hauff, B. Untersuchung der Fossilfundstätten von Holzmaden in Posidonienschiefer des oberen Lias Württembergs. Reptilien. Palaeontographica Stuttgart **64** 1921 pp. 33–38 pls. i–xxi.

127.—Hay, O. P. Descriptions of some Pleistocene Vertebrates found in the United States. Proc. U.S. Nation. Mus. Washington **58** 1921 pp. 83–146.

Heathcote, R. vide Gunn, J. A.

128.—Hennemann-Werdohl, W. Beiträge zur Lebensweise des Feuersalamanders. Jahresber. ProvVer. Wiss. Münster **43** 1915 pp. 120–1.

129.—Holtzinger-Tenever, H. Herpetologische Mitteilungen aus dem Museum für Naturkunde in Oldenburg, Gr. Arch. Natg. Berlin Abt. A **85** pt. 11 1920 pp. 81–98.

130.—Holtzinger-Tenever, H. Herpetologische Mitteilungen aus dem Zoologischen Museum in Berlin. Die von H. Mertens in Indonesien gesammelten Reptilien. Arch. Natg. Berlin Abt. A **85** pt. 11 1920 pp. 99–111.

131.—Holtzinger-Tenever, H. Verzeichnis der im Westf. Provinzial-Museum für Naturkunde befindlichen Reptilien, gesammelt von Oberstabsarzt Dr. Kügler in Japan 1884–1899. Jahresber. ProvVer. Wiss. Münster **44** 1916 pp. 174–179..

132.—Hertling, H. Mitteilung über Augenexstirpation und Augenregeneration bei *Triton taeniatus*. Arch. EntwMech. Leipzig **49** 1921 pp. 545–550 5 figs.

133.—**Herrick, C. J.** The connections of the vomero-nasal nerve, accessory olfactory bulb and amygdala in Amphibia. *J. Comp. Neur.* Philadelphia 33 1921 pp. 213-280 37 figs.

134.—**Hesse, R.** Das Herzgewicht der Wirbeltiere. *Zool. Jahrb. Jena Abt. f. allg. Zool.* 38 1921 pp. 243-364.

135.—**Hewitt, J.** On some Lizards and Arachnids of Natal. *Ann. Durban Mus. Durban* 3 1921 pp. 3-11.

136.—**Hirschler, J.** Sur la descendance de *Triton cristatus* provenant du croisement de femelles normales avec des males mélaniques. *C. R. Soc. biol. Paris* 85 1921 pp. 978-980.

137.—**Hirschler, J.** Abréviation par action de l'iode, de la période larvaire, chez les Batraciens. *C. R. Soc. biol. Paris* 85 1921 pp. 1006-1007.

138.—**Hobley, C. W.** Further Note on Crocodiles. *Journ. E. Africa Uganda N. H. Soc. Nairobi* No. 16 1921 pp. 61-62.

139.—**Hollaender, P. P.** Über den Ursprung der aus dem Mittelhirn im dorsalen Längsbündel absteigenden Nervenfasern bei Sauropsiden. *Jenaische Zeitschr. Jena* 55 1917-19 pp. 203-220 figs. 1-11.

[Holtzinger-Tenever, H. *vide* 129-131.]

140.—**Honigmann, H.** Zur Biologie der Schildkröten. *Biol. Centralbl. Leipzig* 41 1921 pp. 241-250.

141.—**Houssay, B. A. et Sordelli, A.** Action des venins de serpents sur la coagulation sanguine. *J. Phys. Path. Gén. Paris* 18 1920 pp. 781-811.

142.—**Houssay, B. A.** À propos de la curarisation de *Leptodactylus ocellatus*. *J. Physiol. Path. gén. Paris* 19 1921 pp. 66-68.

143.—**Hovasse, R.** L'activation parthénogénétique des oeufs de Grenouille rousse (*Rana temporaria* L.) dans les milieux hypotoniques et hypertoniques. *C. R. Acad. Sci. Paris* 172 (18) pp. 1137.

144.—**Hovasse, R.** Contribution à l'étude histophysiologie des parasites dans le pancréas d'un Têtard de *Rana temporaria* L. *C. R. Soc. biol. Paris* 84 1921 pp. 190-191.

145.—**Howland, R. B.** Experiments on the effect of removal of the prone-

phros of *Amblystoma punctatum*. *J. Exp. Zool. Philadelphia* 32, 1920 pp. 355-395 text-figs. 1-23.

146.—**Huber, A.** Die wärmeliebender Tierwelt der weiter Umgebung Basels. *Arch. Natg. Berlin Abt. A* 82 pt. 7 1918 pp. 1-120 (Reptiles pp. 80-84).

147.—**Huene, F. von.** Neue Beobachtungen an *Simosaurus*. *Acta zool. Stockholm* 2 1921 pp. 201-239 pls. 1-3 text-figs. 1-14.

148.—**Huene, F. von.** Neue Pseudosuchier und Coelurosaurier aus dem Württembergischen Keuper. *Act. zool. Stockholm* 2 1921 pp. 329-403 text-figs. 1-35 pls. 1-4.

149.—**Huene, F. von.** *Gonioglyptus*, ein Altriasischer Stegocephale aus Indien. *Acta zool. Stockholm* 1 1920 pp. 433-464 pls. i-iii text-figs. 1-14.

150.—**Huene, F. von.** Osteologie von *Aëtosaurus ferratus* O. Fraas. *Acta Zool. Stockholm* 1 1920 pp. 465-491 text-figs. 1-51.

151.—**Huene, F. von.** Ein *Telerpeton* mit gut erhaltenem Schädel. *Centralbl. Min. Stuttgart* 1920 pp. 189-192 3 text-figs.

152.—**Huene, F. von.** Coelurosaurier-Reste aus dem obersten Keuper von Halberstadt. *Centralbl. Min. Stuttgart* 1921 pp. 315-320 6 text-figs.

153.—**Huene, F. von.** Ein Plesiosaurierrest aus dem untersten Lias Württembergs. *Centralbl. Min. Stuttgart* 1921 pp. 401-405 2 figs.

154.—**Huene, F. von.** Ueber einen wohl erhaltenen Gaumen von *Trematosaurus brauni*. *Centralbl. Min. Stuttgart* 1921 pp. 502-504 2 figs.

155.—**Humphrey, R. R.** The interstitial Cells of the Urodele Testis. *Amer. J. Anat. Philadelphia* 29 1921 pp. 213-279 pls. 1-4 text-figs. 1-7.

Ingvar, S. vide Müller, E.

156.—**Izuka, A. and Matsuura, K.** Catalogue of the Zoological Specimens exhibited in the Natural History Department, Tōkyō Imperial Museum (Vertebrata). *Tōkyō* 1920 (Reptilia and Batrachians pp. 78-100.

157.—Jacobshagen, E. Zur Morphologie des Oberflächenreliefs der Rumpfdarmschleimhaut der Reptilien. Jena'sche Zeitschr. Jena 56 1920 pp. 361–430 pls. 17–30.

158.—Jacobshagen, E. Die Homologie der Wirbeltierkiemen. Jena'sche Zs. Natw. Jena 57 1920 pp. 87–142 pls. 6–7.

159.—Jaekel, O. Die Wirbeltierfunde aus dem Keuper von Halberstadt. Ser. II. Testudinata. Paleont. Zeit. Berlin 2 1915–1918 pp. 88–214 pls. 2–7 text-figs. 1–62. Addenda t.c. p. 251.

160.—Jaensch, P. A. Beobachtungen über das Auskriechen der Larven von *Rana arvalis* und *fusca* und die Funktion des Stirndrüsenstreifens. Anat. Anz. Jena 53 1921 pp. 567–583 text-figs. 1–7.

161.—Jarisch, A. Über die Wirkung der Schilddrüse auf Kaulquappen. Arch. ges. Physiol. Berlin 179 1920 pp. 158–176 text-figs. 1–3.

162.—Jensen, C. O. Demi-métamorphose chez l'*Amblystoma mexicanum*. C. R. Soc. biol. Paris 84 1921 pp. 423–424.

163.—Jewell, M. E. The Effects of Hydrogen Ion Concentration and oxygen content of water upon regeneration and metabolism of tadpoles. J. Exp. Zool. Philadelphia 30 1920 pp. 461–507 text-figs. 1–24.

164.—Jirešová, M. Über die Entwicklung der Hautdrüsen und ihrer Sekrete bei den Amphibien. Anat. Anz. Jena 51 1918 pp. 280–288 text-figs. 1–5.

165.—Jokl, A. Zur Entwicklung des Anurenauges. Anat. Hefte Wiesbaden 1 Abth. 59 1921 pp. 211–256 4 plates.

166.—Jolly, W. A. Reflex Times in the South African Clawed Frog. Proc. Roy. Soc. London ser. B 92 1921 pp. 31–51.

167.—Karaman, St. Beiträge zur Herpetologie von Jugoslawien. Glasnik Hrv. Prirodosl. Drüst. Zagreb 33 1921 pp. 194–209.

168.—Kingham, J. R. Snakes, Their Fangs and Venom Apparatus. The Action of Venom and the Treatment of Snake-Bite. Austral. Mus. Mag. Sydney 1 (1) 1921 pp. 22–26 4 figs.

169.—Kingham, J. R. Some Large Non-Venomous Snakes and their Food. Austr. Mus. Mag. Sydney 1 (2) 1921 pp. 53–55 2 photos.

170.—Kingham, J. R. Studies in Australian Reptiles. No. 2. Rec. Austral. Mus. Sydney 13 1921 pp. 143–154 figs. 1–9.

171.—Knowles, R. The Mechanism and Treatment of Snake-Bite. Trans. Roy. Soc. Trop. Med. Hyg. London 15 1921 pp. 71–103 tables etc.

172.—Kollmann, M. Régénération caudale chez les Batraciens. i. Régulation et Régénération. C. R. Soc. biol. Paris 85 1921 pp. 1007–1010 figs. ii. Un facteur réglant les dimensions de la partie régénérée. t.c. pp. 1046–1048 fig.

173.—Kornfeld, W. Über die Entwicklung der glatten Muskelfasern in der Haut der Anuren und über ihre Beziehungen zur Epidermis. Anat. Anz. Jena 53 1920 pp. 140–160 text-figs. 1–16.

174.—Kornfeld, W. Pigmentbrüchen zwischen Corium und Epidermis bei Anuren. Anat. Anz. Jena 53 1920 pp. 216–229 text-figs. 1–9.

175.—Krause, A. *Chalcides ocellatus* var. *nigerrima* m.v.n. Arch. Natg. Berlin Abt. A 80 pt. 9 1915 p. 68.

176.—Křiženecký, J. Über das Verhalten unbundenen Froscheier und Froschlärven in destilliertem Wasser. Arch. EntwMech. Leipzig 42 1917 pp. 604–621.

177.—Křiženecký, J. Ein Fall von Hermaphroditismus bei *Triton cristatus* und einige Bemerkungen zur Frage der sexuellen Rippenenzierung. Arch. EntwMech. Leipzig 42 1917 pp. 651–670 1 pl. 1 text-fig.

178.—Krogh, A. Réactions vasomotrices locales dans la peau de la Grenouille. C. R. Soc. biol. Paris 84 1921 pp. 141–143.

179.—Krogh, M. Sur L'étalonnage physiologique de la digitale. C. R. Soc. biol. Paris 84 1921 pp. 143–145 fig.

180.—Kuhlenbeck, H. Zur Histologie des Anurenepalliums. Anat. Anz. Jena 54 1921 pp. 280–285.

181.—Kuhlenbeck, H. Die Regionen des Anurenvorderhirns. Anat. Anz. Jena 54 1921 pp. 304–316 text-figs. 1–8.

182.—Kupelweiser, E. Beitrag zur Physiologie des venösen Vorherzens (Sinus und Hohluenen) der Ringelnatter. Arch. ges. Physiol. Berlin 182 1920 pp. 50–73 figs. 1–8.

183.—Landacre, F. L. The fate of the neural crest in the head of the urodeles. J. Comp. Neur. Philadelphia 33 1921 pp. 1–43 11 figs.

184.—Larsell, O. The cerebellum of *Amblystoma*. J. Comp. Neur. Philadelphia 31 1920 pp. 259–282 21 figs.

185.—Laurens, H. et Detwiler, S. R. Studies on the retina. The structure of the retina of *Alligator mississippiensis* and its photomechanical changes. J. Exp. Zool. Philadelphia 32 1921 pp. 207–234 text-figs. 1–13.

Laurens, H. vide Detwiler, S. R.

186.—Lébédinsky, N. G. Ontogenetische Gestaltsveränderungen des Meckel'schen Knorpels der Sauropsiden. Anat. Anz. Jena 50 1917–18 pp. 313–338 text-figs. 1–27.

187.—Lébédinsky, N. G. Sur un Têtard de *Rana temporaria* L. bicéphale. C. R. Soc. biol. Paris 85 1921 pp. 791–792 figs.

188.—Lecailler, A. Descriptions des sillons qui apparaissent normalement à la surface des oeufs non fécondés du crapaud commun et du crapaud calamite. Arch. anat. microsc. Paris 17 1921 pp. 361–374 1 plate.

189.—Leigh-Sharp, W. H. Abnormal Legs in Frogs. Ann. Mag. Nat. Hist. London ser. 9 1921 7 pp. 187–189.

190.—Levy, F. Über die sogenannten Ureier im Froschhoden. Biol. Centralbl. Leipzig 40 1920 pp. 29–37.

191.—Lisi, L. de. Über die Funktion der Hoden und des Eierstackes der enthirnten Schildkröten. Arch. Entw.-Mech. Leipzig 47 1921 pp. 617–626.

192.—Lloyd, J. H. Abnormalities in the Common Frog (*Rana temporaria*). Proc. Zool. Soc. London 1921 pp. 493–496.

193.—Loveridge, A. Notes on Tortoises collected in East Africa, 1915–1919. Journ. E. Africa Uganda N. H. Soc. Nairobi No. 16 1921 pp. 50–52.

Luckhardt, A. B. vide Carlson, A. J.

194.—Lull, R. S. The Cretaceous Armored Dinosaur, *Nodosaurus textilis* Marsh. Amer. J. Sci. Newhaven Conect. 1 ser. 5 1921 pp. 97–126 pls. 1–4 text-figs. 1–7.

195.—McCarrison, R. Observations on the effects of Fat Excess on the Growth and Metamorphosis of Tadpoles. Proc. Roy. Soc. London ser. B 92 1921 pp. 295–303.

196.—Macht, D. I. and Bloom, W. Comparative study of ethanol, caffeine and nicotine on the development of frogs' larvae. Proc. Soc. Exp. Biol. Med. New York 18 1921 pp. 241–2.

197.—Manfredi, P. Di un caso di melomelia in un Axolotl. Natura Milan 12 1921 pp. 33–38.

198.—Mangold, O. Fragen der Regulation und Determination an umgeordneten Furchungsstadien und verschmolzenen Keimen von *Triton*. Arch. Entw.Mech. Leipzig 47 1921 pp. 249–301.

199.—Mangold, O. Situs inversus bei *Triton*. Arch. Entw.Mech. Leipzig 48 1921 pp. 505–516 1 fig.

Markham, B. vide Wilson, H. V.

200.—Mathew, W. D. Fossil Vertebrates and the Cretaceous-Tertiary Problem. Amer. J. Sci. Newhaven Connect. 2 ser. 5 1921 pp. 209–227.

Matsuura, K. vide Izuka, A.

201.—Maurer, F. Zur Frage von der Vererbung erworbener Eigenschaften. Anat. Anz. Jena 54 1921 pp. 201–205.

202.—Mehl, M. G. A New Form of *Diplocaulus*. Journ. Geol. Chicago Ill. 29 1921 pp. 48–56 2 figs.

Menzies, J. A. vide Atkinson, M.

203.—Mook, C. C. Description of a Skull of the Extinct Madagascar Crocodile, *Crocodilus robustus* Vaillant and Grandidier. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 25–32 pls. 4.

204.—Mook, C. C. Skull Characters and Affinities of the Extinct Florida Gavial, *Gavialosuchus americanus* (Sellards). Bull. Amer. Mus. Nat. Hist. New York 44 1921 p. 33-41 pls. 5-9.

205.—Mook, C. C. *Brachygnathosuchus brasiliensis*, a New Fossil Crocodilian from Brazil. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 43-50 text-figs. 1-4.

206.—Mook, C. C. Individual and Age Variations in the Skulls of Recent Crocodilia. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 51-66 pls. 10-12 text-figs. 1-4.

207.—Mook, C. C. Notes on the Postcranial Skeleton in the Crocodilia. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 67-100 pls. 13-14 text-figs. 1-20.

208.—Mook, C. C. The Dermo-supraoccipital Bone in the Crocodilia. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 100-104 text-figs. 1-2.

209.—Mook, C. C. *Allognathosuchus*, a New Genus of Eocene Crocodilians. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 105-110 pl. 15.

210.—Mook, C. C. Description of a Skull of a Bridger Crocodilian. Bull. Amer. Mus. Nat. Hist. New York 44 1921 p. 111-116 pl. 16-17.

211.—Mook, C. C. The Skull of *Crocodylus acer* Cope. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 117-121 pls. 18-19.

212.—Mook, C. C. Skull Characters of Recent Crocodilia, with notes on the Affinities of the Recent Genera. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 123-268 text-figs. 1-14.

Mook, C. C. *vide* Osborn, H. F.

213.—Muller, J. F. Notes on the Habits of the soft-shell Turtle. —*Amyda mutica*. Amer. Midl. Nat. Notre Dame Ind. 7 1921 pp. 180-183.

214.—Müller, E. et Ingvar, S. Über den Ursprung des Sympathicus bei den Amphibien. Upsala Läkaref. Förhandl. 26 1921 pp. 1-15 pl. 1.

215.—Müller, H. Die dorsale Stammsmuskulatur des Frosches während der

Metamorphose. Zeits. Wiss. zool. Leipzig 118 1919 pp. 205-245 pls. 2-4 text-figs. 1-2.

216.—Naville, A. L'origine des mitochondries chez les embryons des batraciens anoures (note préliminaire). C. R. Soc. Phys. Hist. Nat. Genève 37 1920 pp. 21-24 figs. 1-4.

217.—Naville, A. L'évolution des phénomènes de division nucléaire au cours du développement du muscle chez les Batraciens anoures (Note préliminaire). C. R. Soc. Phys. Hist. Nat. Genève 38 1921 pp. 93-96.

Nifterik, C. H. M. *van vide* Bruyn.

218.—Noble, G. K. The Bony Structure and Phyletic Relations of *Sphaerodactylus* and Other Allied Lacertilian genera, with the Description of a New Genus. Amer. Mus. Novit. No. 4 1921 pp. 1-16.

219.—Noble, G. K. Five New Species of Salientia from South America. Amer. Mus. Novit. New York No. 29 1921 pp. 1-7.

220.—Noble, G. K. Some New Lizards from North-Western Peru. Ann. Acad. Sci. New York 29 1921 pp. 133-139.

221.—Noble, G. K. Two New Lizards from North-Western Peru. Ann. Acad. Sci. New York 29 1921 pp. 141-143.

222.—Noble, G. K. The Anterior Cranial Elements of *Ædipus* and Certain Other Salamanders. Bull. Amer. Mus. New York 44 (1) 1921 pp. 1-6.

223.—Noble, G. K. Snakes that Inflate. Nat. Hist. New York 21 1921 pp. 166-171.

224.—Noble, G. K. A Search for the Marsupial Frog. Nat. Hist. New York 21 1921 pp. 474-485 photos.

Noble, G. K. *vide* Speck.

225.—Noel, R. Sur quelques attitudes fonctionnelles du chondriome de la cellule hépatique. C. R. Acad. Sci. Paris 172 (22) 1921 pp. 1379-1381.

226.—Nopcsa, F. Über Geschlechtsunterschiede bei Dinosauriern. Centralbl. Min. Stuttgart 1915 pp. 385-388 text-figs. 1-2.

- 227.—Nopcsa, F. Über Dinosaurier, Centralbl. Min. Stuttgart. 1. Notizen über die Systematik der Dinosaurier. 1917 pp. 203-213.—2. Die Riesenformen unter dem Dinosaurier pp. 232-348 text-fig. 1.—3. Über die Pubis der Orthopoden pp. 348-351.—4. Neues über Geschlechtsunterschiede bei Orthopoden. 1918 pp. 186-198 text-figs. 1-7.
- 228.—Nopcsa, F. Zur systematischen Stellung von *Poposaurus* (Mehl.). Centralbl. Min. Stuttgart 1921 p. 348.
- 229.—Nopcsa, F. *Leipsanosaurus* n. gen. Ein Neuer Thyreophore aus der Gosau. Föld. Kőzl. Budapest 48 1918 pp. 324-328 pl. 3.
- 230.—Nopcsa, F. Die Dinosaurier der Siebenbürgischen Landesteile Ungarns. Jahrb. Kgl. Ungar. Geol. Reich. Budapest 23 1915 pp. 1-24 pls. 1-4 text-figs. 1-3.
- 231.—Obreshkove, V. The photic reactions of tadpoles in relation to the Bunsen-Roscoe Law. J. Exp. Zool. Philadelphia 34 1921 pp. 235-279 text-figs. 1-9.
- 232.—O'Donoghue, C. H. An Introduction to Zoology. London 1920. Ch. ii-v. (The Frog, pp. 12-117; Histology and Cytology, pp. 354-375; Embryology, pp. 376-396; Evolution, etc., pp. 472-482) many figs.
- 233.—Ogawa, C. Experiments on the regeneration of the lens in *Diemyctylus*. J. Exp. Zool. Philadelphia 33 1921 pp. 395-407 figs. 1-4.
- 234.—Ortenburger, A. I. A list of Amphibia and Reptilia collected in Indiana. Copeia New York No. 99 1921 pp. 73-76.
- 235.—Ortenburger, A. I. An eastern record and a note on *Charina bottae* (Blairville). Copeia New York No. 100 1921 p. 84.
- 236.—Osborn, H. F. and Mook, C. C. *Camarasaurus*, *Amphicoelias*, and other Sauropods of Cope. Mem. Amer. Mus. Nat. Hist. New York new Ser. 3 (3) 1921 pp. 247-387 pls. lx-lxxxv text-figs. 1-127.
- Pacella, G. vide Guglielmetti, J.
- 237.—Pack, H. J. Food Habits of *Sceloporus graciosus graciosus* (Baird & Girard). Proc. Biol. Soc. Washington 34 1921 pp. 63-66 (tables).
- 238.—Painter, T. S. Studies in reptilian spermatogenesis. I. The spermatogenesis of lizards. J. Exp. Zool. Philadelphia 34 1921 pp. 281-327 6 text-figs. 4 plates.
- 239.—Palmgren, A. Embryological and Morphological Studies on the Mid-Brain and Cerebellum of Vertebrates. Acta Zool. Stockholm 2 1921 pp. 1-94 text-figs. 1-119.
- 240.—Pearson, H. S. The Skull and some Related Structures of a Late Embryo of *Lygosoma*. Journ. Anat. Cambridge 56 1921 pp. 20-43.
- 241.—Perez, C. Sur un prétendu tissu interstitiel dans le testicule des Batraciens Urodèles. C. R. Acad. Sci. Paris 172 (23) 1921 pp. 1443-1445.
- 242.—Petersen, H. Bildung einer überzahligen Linse bei *Rana temporaria*. Arch. EntwMech. Leipzig 47 1921 pp. 239-248 text-figs. 1-6.
- 243.—Phisalix, M. Animaux venimeux et Venins. Paris 1921 2 pp. 1-864 pls. 1-17 (8 coloured) figs. 1-521.
- 244.—Pope, P. H. Some doubtful points in the life-history of *Notophthalmus viridescens*. Copeia New York No. 91 1921 pp. 14-15.
- 245.—Portmann, G. Recherches sur le sac et le canal endolymphatiques. Organe endolymphatique des Batraciens. C. R. Soc. biol. Paris 84 1921 pp. 133-136 fig.
- Power, J. H. vide Boulenger, G. A.
- 246.—Procter, J. B. On a Small Collection of Reptiles and Batrachians made by Mr. Goodfellow in E. Bolivia (1918-19). Ann. Mag. Nat. Hist. London (9) 7 1921 pp. 189-192.
- 247.—Procter, J. B. A Note on the Tail of *Spelerpes fuscus*, Bonaparte. Ann. Mag. Nat. Hist. London (9) 7 1921 pp. 222-223.
- 248.—Procter, J. B. Further Lizards and Snakes from Persia and Mesopotamia. J. Bombay N. H. Soc. 23 1921 pp. 251-253.
- 249.—Procter, J. B. On the Variation of the Scapula in the Batrachian Groups Aglossa and Arcifera. Proc. Zool. Soc. London 1921 pp. 197-214 figs.
- Procter, J. B. vide Smith, M. A.

250.—Przibram, H. Die Häutungsprogression der Ringelnatter (*Tropidonotus natrix* L.) als Typus des "Ballastwachstums." Anat. Hefte Wiesbaden 57 1919 pp. 547-559.

251.—Reese, A. M. The Structure and Development of the Integumental Glands of the Crocodilia. Journ. Morph. Philadelphia 35 1921 pp. 581-599 pls. 1-6.

252.—Rein, E. Die Schlangenhöhle von Lanuvium. Ann. Acad. Sci. Fenn. Helsingfors ser. B 11 1919-21.

253.—Reuter, J. Untersuchungen über einige Extraktstoffe von *Cryptobranchus japonicus*. Zs. Biol. München 72 1920 pp. 129-140.

254.—Riquier, G. C. Ancora sullo sviluppo del sistema nervoso simpatico dei rettili e degli occhi. Riv. petal. nervment. Firenze 25 1920 pp. 38-46 3 figs.

255.—Ritter, W. E. The rattling of Rattle Snakes. Copeia New York No. 95 1921 pp. 29-31.

Rogers, F. T. vide Bercovitz, Z.

Rouse, W. vide Belogolowy.

256.—Runnström, J. Über Osmotischen Druck und Eimembranfunktion bei den Lachsfischen. Act. Zool. 1 1920 pp. 321-336.

257.—Ruthven, A. G. *Oligodon rowsci* a new name for *Oligodon ornatus* Rowsc. Copeia New York No. 92 1921 p. 20.

258.—Sassa, K. Observations on Reflex Responses to Rhythmical Stimulation in the Frog. Proc. Roy. Soc. London ser. B. 92 1921 pp. 328-341.

259.—Sauter, H. H. Sauter's Formosa-ausbeute. *Viperidae* auct. Arch. Natg. Berlin Abt. A 80 pt. 5 1914 pp. 33-39.

260.—Schaffer, J. Kernlose rote Blutkörperchen bei Amphibien. Anat. Anz. Jena 54 1921 pp. 196-201.

261.—Schmidt, K. P. A New Name for a Subspecies of *Uta stansburiana* Baird and Girard. Amer. Mus. Novit. No. 15 1921 pp. 1-2.

262.—Schmidt, K. P. Notes on the Herpetology of Santo Domingo. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 7-20 figs. 1-12.

263.—Schmidt, K. P. The Herpetology of Navassa Island. Bull. Amer. Mus. Nat. Hist. New York 44 1921 pp. 555-559 pls. 25-26.

264.—Schmidt, K. P. A list of lizards collected by R. H. Beck in the Southern Pacific, Nov., 1920, to May, 1921. Copeia New York No. 101 1921 pp. 90-92.

265.—Schmidt, W. J. Über die Beziehungen der glatten Muskelzellen in der Haut von Laubfrosch zum Epithel. Anat. Anz. Jena 51 1918 pp. 289-302 text-figs.

266.—Schmidt, W. J. Über Chromatophorenvereinigungen bei Amphibien, insbesondere bei Froschlärven. Anat. Anz. Jena 51 1918 pp. 493-501 text-figs. 1-5.

267.—Schmidt, W. J. Über Riesenepithel und—drüsenzellen in der Epidermis—des Laubfrosches. Anat. Anz. Jena 51 1918 pp. 535-547 text-figs. 1-9.

268.—Schmidt, W. J. Sind die Muskelzellen in den perforierenden Bündeln der Haut bei *Rana* ektodermalen Ursprungs? Anat. Anz. Jena 52 1919-1920 pp. 115-129 text-figs. 1-8.

269.—Schmidt, W. J. Einiges über die Hautsinnesorgane der Agamiden, insbesondere von *Calotes*, nebst Bemerkungen über diese Organe bei Geckoniden und Iguaniden. Anat. Anz. Jena 53 1920 pp. 113-139 text-figs. 1-16.

270.—Schmidt, W. J. Einige Bemerkungen über „Doppelsternchromatophoren.“ Anat. Anz. Jena 53 1920 pp. 230-239 text-figs. 1-7.

271.—Schmidt, W. J. Zur Frage nach der Entstehung der Farbzellvereinigungen. (Beobachtungen bei den Geckonen *Teratoscincus scincus* und *Geckolepis maculata*). Anat. Anz. Jena 53 1921 pp. 481-494 figs. 1-6.

272.—Schmidt, W. J. Zur Ontogenie der Muskelzellen in der Anurenhaut. Anat. Anz. Jena 54 1921 pp. 78-82.

273.—Schmidt, W. J. Beobachtungen an dem roten Chromatophoren in der Haut von *Rana fusca* nebst Bemerkungen über die anderen hier vorkommenden Farbzellen. Anat. Hefte Wiesbaden 1 Abth. 58 1920 pp. 641-671 1 plate.

- 274.—Schmidt, W. J. Einiges über die Entwicklung der Guanophoren bei den Amphibien. *Anat. Hefte Wiesbaden* 1. Abth. 59 1921 pp. 293–318 2 plates.
- 275.—Schoch, H. E. The Egg-laying of a Chameleon. *S. Afric. Journ. Nat. Hist. Pretoria* 2 1920 pp. 113–115.
- 276.—Schultz, W. Gleichlauf von Verpflanzung und Kreuzung bei Froschlurchen. Schlüsse auf die Zusammenfügung der Plasmabausteine. *Arch. EntwMech. Leipzig* 43 1918 pp. 361–381. 1 pl.
- 277.—Schulze, W. Versuche über den Einfluß endokriner Drüsubstanzen auf die Morphogenie. Kaulquappenfütterungsversuche mit Epithelkörpern. *Arch. EntwMech. Leipzig* 43 1921 pp. 439–504 figs. 1–3.
- 278.—Scott-Birabén, M. I., and Fernández-Marcinowski, K. Variaciones Locales de Caracteres Especificos en Larvas de Anfíbios. *An. Soc. Cient. Argentina Buenos Aires* 92 1921 pp. 129–144.
- 279.—Scriban, J. A. Sur la présence des fibres musculaires atypiques dans la musculature de la queue des Têtards de Batraciens Anoures pseudo-hypertrophiques. *C. R. Soc. biol. Paris* 85 1921 pp. 574–578 figs.
- 280.—Seidlitz, W. von. Über die vordiluviale Wirbeltierfauna Mittelthüringens. *Jenaische Zeitschr. Jena* 55 1917–19 pp. 3–22 figs. 1–3.
- 281.—Serié, P. Notas sobre las serpientes venenosas de la Argentina. *Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires* 1916 (1918–19) pp. 400–417 pls. 39–41.
- 282.—Serié, P. Enumeración de los ofidios de Tucumán. *Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires* 1916 (1918–19) pp. 418–420.
- 283.—Shaner, R. F. The development of the pharynx and aortic arches of the turtle, with a note on the fifth and pulmonary arches of mammals. *Amer. J. Anat. Philadelphia* 29 1921 pp. 407–429 pls. 1–4.
- 284.—Shufeldt, R. W. Observations on the Cervical Region of the Spine in Chelonians. *Journ. Morph. Philadelphia* 35 1921 pp. 213–224 pls. 1 & 2.
- 285.—Slotopolsky, B. Beiträge zur Kenntnis der Verstümmelungs- und Regenerationsvorgänge am Lacertilierschwanz. *Viertelj. Nat. Ges. Zürich* 66 1921 pp. 39–48.
- 286.—Smith, M. A. Two new Batrachians and a new Snake from Borneo and the Malay Peninsula. *Journ. Fed. Malay Sts. Mus. Kuala Lumpur* 10 1921. pp. 197–199 pl. 11.
- 287.—Smith, M. A. Reptiles and Batrachians collected on Pulo Condore. *Journ. Nat. Hist. Soc. Siam Bangkok* 4 1921 pp. 93–97 pl. 1.
- 288.—Smith, M. A. New or Little-known Reptiles and Batrachians from Southern Annam (Indo-China). *Proc. Zool. Soc. London* 1921 pp. 423–440 2 pls. figs.
- 289.—Smith, M. A. and Procter, J. B. On a Collection of Reptiles and Batrachians from the Island of Ceram, Indo-Australian Archipelago. *Ann. Mag. Nat. Hist. London ser. 9* 7 1921 pp. 352–355.
- 290.—Snyder, I. L. Some Observations on Blanding's Turtle. *Canad. Field-Nat. Ottawa* 35 1921 pp. 17–18.
- Sordelli, A. *vide* Houssay.
- 291.—Speck, F. G. The origin of the belief that snakes swallow their young for protection. *Copeia New York* No. 98 1921 pp. 51–54; also Noble, G. K. pp. 54–57.
- 292.—Spemann, H. Über die Determination der ersten Organanlagen des Amphibienembryo I–VI. *Arch. EntwMech. Leipzig* 43 1918 pp. 448–555 6 pls. 7 text-figs.
- 293.—Spemann, H. Die Erzeugung tierischer Chimären durch heteroplastische embryonale Transplantation zwischen *Triton cristatus* und *taeniatus*. *Arch. EntwMech. Leipzig* 43 1921 pp. 533–570 figs. 1–24.
- 294.—Steiner, H. Hand und Fuss der Amphibien, ein Beitrag zur Extremitätenfrage. *Anat. Anz. Jena* 53 1921 pp. 513–542 text-figs. 1–14.
- 295.—Stephens, F. *Phyllodactylus tuberculosus* in California. *Copeia New York No.* 91 1921 p. 16.

296.—Sternfeld, R. Reptilia und Amphibia in Ergebnisse der Zweiter Deutschen Zentral-Afrika-Expedition 1910-1911 unter Führung Adolph. Friedrichs, Hefzog. zu Mecklenburg. Bd. I. Zoologie Lief 11. pp. 407-510 3 pls. Leipzig (Klinkhardt) 1917 8vo.

297.—Sternfeld, R. Zur Tiergeographie Papuasiens und der pazifischen Inselwelt Abhandl. Senckenb. Natf. Ges. Frankfurt 36 1920 pp. 375-436 pl. 31.

298.—Stieve, H. Die Spermatogenese des Grottenolmes. Anat. Anz. Jena 51 1918 pp. 321-340 text-figs. 1-11.

299.—Stieve, H. Zur Eientwicklung des Grottenolms (*Proteus anguineus* Laur.). Anat. Anz. Jena 52 1919-1920 pp. 481-501.

300.—Stieve, H. Anatomische Untersuchungen über die Fortpflanzung des Grottenolms (*Proteus anguineus* Laur.). Anat. Hefte. Wiesbaden I. Abth. 56 1919 pp. 403-471 4 plates.

301.—Stieve, H. Über der Einfluss der Umwelt auf die Eierstöcke der Tritonen. Ein Beitrag zur Frage nach der Vererbarkeit erworbener Eigenschaften und der Parallinduktion. Arch. EntwMech. Leipzig 49 1921 pp. 179-267 2 plates.

302.—Standberg, H. Beitrag zur Kenntniss des Chievitzschen Organs. Anat. Anz. Jena 51 1918 pp. 177-194 text-figs. 1-12.

Street, du V. de, vide Frémiet, F.

303.—Stremme, H. Über die durch Bandverknöcherung hervorgerufene proximale Verschmelzung zweier Mittelhand- oder Mittelfussknochen eines Reptile. Arch. Biont. Berlin 4 1916 pp. 141-144 figs. 1-6.

304.—Stromer, E. Die Entdeckung und die Bedeutung der Land und Süßwasser bewohnenden Wirbeltiere im Tertiär und in der Kreide Aegyptens. Zeit. Deutsch Geol. Ges. Berlin 68 1916-17 pp. 397-425.

305.—Stübel, H. Mikroskopisch wahrnehmbare Veränderungen der Querstreifung des Muskels nach Versuchen am Frosch- und Insektenmuskel. Arch. ges. Physiol. Berlin 180 1920 pp. 209-249 figs. 1-4.

306.—Swarth, H. S. The type locality of *Crotalus willardi* Meek. Copeia New York No. 100 1921 p. 83.

307.—Swingle, W. W. The germ cells of Anurans. I. The male sexual cycle of *Rana catesbiana* larvae. J. Exp. Zool. Philadelphia 32 1921 pp. 235-331 pls. 1-15 text-figs. 1-2.

308.—Swingle, W. W. The relation of the pars intermedia of the hypophysis to pigmentation changes in anuran larvae. J. Exp. Zool. Philadelphia 34 1921 pp. 119-141 4 text-figs. 2 plates.

309.—Taubé, E. Regeneration mit Beteiligung ortsfremder Haut bei Tritonen. Experimentelle Untersuchungen, mit Unterstützung durch die Welterhausche Stiftung in Freiburg und die Freiburger wissenschaftliche Gesellschaft. Arch. EntwMech. Leipzig 49 1921 pp. 269-315 2 plates.

310.—Tenenbaum, S. Gady i plazy wysp Balearskich. Pracownia biologiczna T. M. P. Warsaw 1915 16 pp. [Resumé in German.]

311.—Terroine, E. F. and Barthélemy, H. Composition de l'oeuf de grenouille rousse (*Rana fusca*) à l'époque de la ponte. C. R. Acad. Sci. Paris 173 (15) 1921 pp. 611-613.

312.—Terron, C. C. Datos para una Monografia de la Fauna Erpetologica de la Peninsula de la Baja California. Mem. Rev. Soc. Cient. "Antonio Alzate" Mexico 39 1921 pp. 161-171.

313.—Terron, C. C. Los Crotalios Mexicanos Monografia. Mem. Rev. Soc. Cient. "Antonio Alzate" Mexico 39 1921 pp. 173-194.

314.—Thapar, G. S. On the Venous System of the Lizard *Varanus bengalensis* (Daud.). Proc. Zool. Soc. London 1921 pp. 487-492.

315.—Uhlenhuth, E. Die Zellvermehrung in der Hautkulturen von *Rana pipiens*. Arch. EntwMech. Leipzig 42 1917 pp. 168-207 5 pls. 1 text-fig.

316.—Uhlenhuth, E. Studien zur Linsenregeneration bei den Amphibien. I. Ein Beitrag zur Depigmentierung der Iris, mit Bemerkungen über den Wert der Reizphysiologie. (Schluss.) Arch. EntwMech. Leipzig 46 1920 pp. 149-163.

- 317.—Uhlenhuth, E. The Internal Secretions in Growth and Development of Amphibians. Amer. Nat. New York 55 1921 pp. 193–221.
- 318.—Uhlenhuth, E. Observation on the Distribution and Habits of the Blind Texan Cave Salamander, *Typhlomolge rathbuni*. Biol. Bull. Marine Biol. Lab. Wood's Hole Mass. 49 1921 pp. 73–104.
- 319.—Uhlenhuth, E. Experimental gigantism produced by feeding pituitary glands [in *Amblystoma*]. Proc. Soc. Exp. Biol. Med. New York 18 1920 pp. 11–14.
- 320.—Vallois, H. V. Reconstitution de quelques Muscles des Dinosauriens ornithopodes. C. R. Soc. biol. Paris. 85 1921 pp. 971–973.
- 321.—Verzmer, G. Zur Schlangenfauuna Süd-Kleinasien, speziell des cilicischen Taurus. Arch. Natg. Berlin Abt. A 83 pt. 11 1919 pp. 95–122.
- 322.—Vialli, M. Ricerche sulla Disidratazione nella *Rana esculenta*. Atti Soc. Ital. Sci. Nat. Milans 59 1920 pp. 241–257.
- 323.—Voss, H. Die beiden Hauptfaktoren der traumatischen Parthenogenese. Biol. Centralbl. Leipzig 41 1921 pp. 359–367.
- 324.—Wachs, H. Restitution des Auges nach Exstirpation von Retina und Linse bei Tritonen. Zweiter Teil. Arch. EntwMech. Leipzig 46 1920 pp. 328–390 pls. 13–19 text-figs. 1–12.
- 325.—Wall, F. The Snakes of Ceylon. Colombo 1921 pp. xxii + 1 — 582 figs. 1–98 map.
- 326.—Wall, F. Notes on some notable additions to the Bombay Natural History Society's Snake Collection. J. Bombay N. H. Soc. 28 1921 pp. 43–44 1 pl.
- 327.—Wall, F. A New Snake of the Family Uropeltidae. J. Bombay N. H. Soc. 28 1921 pp. 91–42 1 pl.
- 328.—Wall, F. *Phayrea isabellina*, Theobald, Re-described. Rec. Ind. Mus. Calcutta 22 1921 pp. 109–110.
- 329.—Wall, F. Remarks on the Indian species of *Dendrophis* and *Dendrelaphis*. Rec. Ind. Mus. Calcutta 22 1921 pp. 151–162.
- 330.—Wall, F. Notes on some Ceylon Snakes. Spol. Zeylan Colombo 11 1921 pp. 396–403.
- 331.—Watson, D. S. M. On *Eugyrinus willi*; a Branchiosaur from the Lancashire coal-measures. Geol. Mag. London 58 1921 pp. 70–74 1 fig.
- 332.—Watson, D. M. S. The Bases of Classification of the Theriodontia. Proc. Zool. Soc. London 1921 pp. 35–98 figs. 1–29.
- 333.—Weber, A. Recherches sur la toxicité du milieu intérieur des Batraciens Urodèles vis-à-vis de leurs oeufs. C. R. Acad. Sci. Paris 172 1921 pp. 1249–1251.
- 334.—Weber, A. Greffes d'oeufs de Tritons dans la cavité péritonéale de Salamandres. C. R. Acad. Sci. Paris 172 1921 pp. 1687–1688.
- 335.—Weber, A. Développement expérimental d'oeufs de Crapaud dans l'oviducte de la femelle adulte. C. R. Soc. biol. Paris 85 1921 pp. 415–417.
- 336.—Weber, A. Recherches sur le développement de l'oesophage chez quelques Reptiles Algériens. C. R. Soc. biol. Paris 85 1921 pp. 417–418.
- 337.—Weber, A. Action tératogène des Greffes d'oeufs croisées entre Batraciens Anoures et Batraciens Urodèles. C. R. Soc. biol. Paris 1921 pp. 912–913.
- 338.—Wegelin, C. et Abelin, J. Über die Wirksamkeit der menschlichen Schilddrüse im Froschlärvenversuch. Arch. Exper. Path. Leipzig 89 1921 pp. 219–251 text-figs. 1–22.
- 339.—Wenig, J. Zu Keibels Arbeit: „Über die Entwicklung des Labyrinthanhanges (Recessus labyrinthi oder Ductus endolymphaticus) bei den Schildkröten und über seine Homologisierung bei den Wirbeltieren.“ Anat. Anz. Jena 49 1917 pp. 576–582.
- 340.—Werner, F. Über Reptilien und Amphibien aus Albanien gesammelt von Prof. R. Ebner und Dr. H. Karny im Sommer 1918. Arch. Natg. Berlin Abt. 84 A (10) 1920 pp. 140–150 1 fig.
- 341.—Werner, F. Reptilien und Amphibien aus dem Amanus-Gebirge. Arch. Naturg. Berlin 85 A (8) 1920 pp. 130–141 1 fig.

342.—Werner, F. Synopsis der Schlangenfamilie der Typhlopiden auf Grund des Boulenger'schen Schlangenkatalogs (1893-1896). Arch. Natg. Berlin **87** A (7) 1921 pp. 266-330 21 figs.

343.—Werner, F. Synopsis der Schlangenfamilie der Boiden auf Grundlage des Boulenger'schen Schlangenkatalogs (1893-96). Arch. Natg. Berlin **87** A (7) 1921 pp. 230-265 3 figs.

344.—Werner, F. Zwei neue neotropische Laubfrösche. Zool. Anz. Leipzig **52** 1921 pp. 179-181.

345.—Wilder, H. H. Notes on larval Amphibia collected in China. Copeia New York No. 98 1921 pp. 59-62.

346.—Wilhelmi, A. Experimentelle Untersuchungen über Situs inversus viscerum. Arch. EntwMech. Leipzig **48** 1921 pp. 517-532 figs. 1-9.

347.—Wilson, H. V. et Markham, B. Asymmetrical regulation in anuran embryos with spina bifida defect. J. Exp. Zool. Philadelphia **30** 1920 pp. 171-188 5 text-figs.

348.—Wintrebert, P. L'irritabilité aneurale de l'ectoderme décelée par le déplacement ciliare de l'embryon chez *Rana temporaria*. C. R. Acad. Sci. Paris **172** (15) 1921 pp. 934-936.

349.—Witschi, E. Der Hermaphroditismus der Frösche und seine Bedeutung für des Geschlechtsproblem und die Lehre von der inneren Sekretion der Keimdrüsen. Arch. EntwMech. Leipzig **49** 1921 pp. 316-358 2 plates 10 text-figs.

350.—Witschi, E. (a) Bemerkungen zum Problem der Geschlechtsvererbung. (b) Die Chromosomen in der Ei- und Samenreifung von *Rana temporaria*. Verh. Schweiz. Nat. Ges. Aarau etc. **102** 1921 pp. 148-149.

351.—Witte, G. F. de. Description de Batraciens Nouveaux du Congo Belge. Rev. Zool. Afr. Bruxelles **9** (1) 1921 pp. 1-21 pls. 1-5.

352.—Woerdeman, M. W. Über die Gaumendrüsen der Krokodile. Anat. Anz. Jena **53** 1920 pp. 345-352 text-figs. 1-5.

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353.—Wright, A. H. The California or Rosy Boa (*Lichanura roseofusca* Cope). Copeia New York **95** 1921 pp. 35-36.

354.—Wright, A. H. Frogs: Their Natural History and Utilization. Appendix vi. Rep. U.S. Comm. Fish. **1919** Washington 1921 pp. 1-44 pls. i-xxii.

355.—Zirpols, G. Ricerche sulla Metamorfosi degli Anfibi Anuri. Natura Milan **12** 1921 pp. 8-13.

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Paragonatodes gen. n. for *Gonotodes dickersoni* Schmidt, NOBLE Amer. Mus. Novit. No. 4 1921 p. 14.

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Lepidoblepharis barbouri sp. n. Peru, NOBLE Ann. Acad. Sci. New York 29 p. 133.

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Uta stansburiana stejnegeri subsp. n. Lower California, SCHMIDT (K.P.) Amer. Mus. Novit. No. 15 1921 p. 1.

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Bachia intermedia sp. n., Peru, NOBLE Ann. Acad. Sci. New York 29 p. 142.

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† *Pleurocoelus nanus* Marsh = *Astrodon nanus* Marsh; *P. altus* Marsh = *A. altus* Marsh, GILMORE Proc. U.S. Nation. Mus. Washington 59 1921 p. 583.

† *Titanosaurus dacus* sp. n.; Cretaceous of Hungary, NOPCSA Jahrb. Kgl. Ung. Geol. Reich. Budapest 1915 23 p. 14 pl. iii.

† Gen. et sp. n. of unnamed Sauropoda from Eocene of Egypt, STROMER Zeit. Deutsch. Geol. Ges. Berlin 1916-17 68 pp. 409 & 422.

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† *Orthomerus transylvanicus* f. t. and var. *sulcata*, notes on, NOPCSA Centralbl. Min. etc. 1915 p. 386 fig. 1; † *O. var. sulcata* n., Cretaceous of Hungary, NOPCSA Jahrb. Kgl. Ung. Geol. Reich. Budapest 1915 23 p. 7 pls. ii & iv.

† *Nodosaurus textilis* Marsh redescribed, LULL 194.

† *Struthiosaurus transylvanicus* sp. n. Cretaceous of Hungary, NOPCSA Jahrb. Kgl. Ung. Geol. Reich. Budapest 1915 23 p. 11 pls. iii & iv.

† *Ankylosauridae* subfam. n. (for *Europlocephalus*, *Ankylosaurus*, *Sarcolestes*); *Leipsanosaurus noricus* gen. et sp. n. Cretaceous of Austria, NOPCSA Föld. Közl. Budapest 48 1918 pp. 324-328 pl. iii.

† *Brachyceratops montanensis*, addt. description Upper Cretaceous, Montana, p. 7 pls. 1, 3, 4; text-figs. 2-9, 11-26, 28-39, 41-47, GILMORE Prof. Paprs. U.S. Geol. Surv. 103 1917.

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Chaperina friedericii sp. n. Solomon Ids., STERNFELD Abh. Senckenb. Natf. Ges. 36 1921 p. 435 pl. 31.

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SUB-ORDER LEPTOSPONDYLIA.

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SUB-ORDER STEREOSPONDYLIA.

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W. L. SCLATER, M.A.

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3.—Ade, A. Alpendohlen schaffen den Nährboden für ein seltenes Moos. Orn. Monatsb. Berlin 29 1921 pp. 69-70.

4.—Agnew, N. V. I. Further notes from Peel Island, Moreton Bay, Queensland. Emu Melbourne 21 1921 pp. 131-137.

5.—Ahlborn, F. Der Segelflug der Vögel. Ber. Abhandl. wiss. Ges. Luftfahrt. in Zs. Flugtech. u. Motorluftsch. 5th heft. 1921 26 pp. 41 text-fig. 1 pl.

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6.—Alexander, W. B. The birds of the Swan river district, Western Australia. Emu Melbourne 20 1921 pp. 149-168 map.

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7.—Alexander, W. B. The Tubinares (Petrels and Albatrosses) in the H. Gould collection at Philadelphia. Emu Melbourne 20 1921 pp. 224-227.

8.—Alford, C. E. Diving Ducks: some notes on their habits and courtship. Brit. Bds. London 15 1921 pp. 33-38.

9.—Allen, A. S. Food of Western House Wrens. Condor Berkeley Cal. 23 1921 p. 166.

10.—[Allen, G. M.] Some vanished birds of New England. Bull. Boston Soc. N. H. No. 13 1918 pp. 2-6.

11.—Allen, G. M. The Wild Turkey in New England. Bul. Essex Co. Orn. Cl. Salem 1921 pp. 5-18 map.

12.—Allen, W. R. The birds of Lake Poopó, Bolivia. Auk Lancaster Pa. 38 1921 pp. 340-344.

13.—Alphonsus, Bro. Bird migration record made at Notre Dame, Indiana, in the spring of 1920. Amer. Midl. Nat. 7 1921 pp. 63-68.

14.—Anderson, R. M. Obituary: Prof. John Macoun. Auk Lancaster Pa. 38 1921 pp. 158-159.

15.—Annandale, N. The birds of Barkuda Island [in the Chilka Lake, Orissa]. Rec. Ind. Mus. Calcutta 22 1921 pp. 325-330.

16.—Anon. Obituary: A. W. Milligan. Emu Melbourne 21 1921 p. 75.

17.—Anon. The late Dr. Isao Ijima, President of the Society, with his obituary. Tori Tokyo 3 No. 11 1921 portr.

18.—Arlt, T. Die Ausbreitung der Vögel. Arch. Naturg. Berlin 81 Abt A. 12 heft 1916 pp. 13-135.

19.—Arrigoni degli Oddi, E. Elenco delle pubblicazioni (1884-1920) pp. 1-10. Venezia (C. Ferrari) 1921 8vo.

20.—Arthur, S. C. The feeding habits of the Black Skimmer. Auk Lancaster Pa. 38 1921 pp. 566-574 2 pls.; also W. Stone pp. 595-596.

21.—Ashby, E. A new species of *Ptilotis* from Western Australia. Emu Melbourne 20 1921 pp. 190-191.

22.—Austin, S. Report on the birds of Epping Forest for the year 1920. Trans. London Nat. Hist. Soc. for 1920 1921 pp. 36-42.

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23.—B——, C. F. East African notes. Ool. Rec. London 1 1921 pp. 1-8.

24.—Babault, G. Mission Guy Babault dans les Provinces Centrales le l'Inde, dans la région occidentale de l'Himalaya et Ceylan 1914. Resultats scientifiques. Oiseaux pp. 1-342 6 photos. 6 pls. 2 maps. Paris (Imp. Gen. Lahure) 1920 4to.

25.—Bacmeister, W. Über das Vorkommen des Austernfischers (*Hæmatopus ostralegus* L.) in Württemberg. Zugleich ein Beitrag zum Wanderzug dieser Art. Verhandl. Orn. Ges. Bay. München 15 1921 pp. 45-51.

Bailey, P. G. *vide* Punnett.

26.—Baily, W. S. The Senegal Pie (*Cryptorhina afra*). Bird-Notes Ashbourne (3) 4 1921 pp. 101-106 photos.

27.—Baily, W. S. The breeding of the Lesser Diuca Finch (*Diuca minor*). Bird-Notes Ashbourne (3) 4 1921 pp. 151-153 photos.

28.—Baily, W. S. The breeding of the Chingolo Song-Sparrow (*Zonotrichia pileata*). Bird-Notes (3) 4 1921 pp. 177-179 photos.

29.—Baily, W. S. The Picui Dove (*Columbula picui*). Bird-Notes (3) 4 1921 pp. 259-261 photos.

30.—Baker, E. C. S. The Game-birds of India, Burma and Ceylon. Vol. I. Ducks and their allies, pp. xvi + 340 30 col. pls. Vol. II. Snipe Bustards and Land-Grouse pp. xvi + 328 19 col. 6 uncol. pls. and 2 maps. London (Bombay N. H. Soc.) 1921 8vo.

31.—Baker, E. C. S. New subspecies of Sunbirds. Bul. Bt. Orn. Cl. London 41 1921 pp. 71-72.

32.—Baker, E. C. S. *Arboricola torqueola millardi* described and diagnosis of the genus *Nigravis*. Bul. Bt. Orn. Cl. London 41 1921 p. 101.

33.—Baker, E. C. S. Description of two new races of *Dicaeum*. Bul. Bt. Orn. Cl. London 41 1921 pp. 108-109.

34.—Baker, E. C. S. Exhibition of eggs of oriental Shrikes and Flycatchers. Bul. Bt. Orn. Cl. London 41 1921 pp. 144-146.

35.—Baker, E. C. S. A new race of *Dicaeum*. Bul. Bt. Orn. Cl. London 42 1921 p. 12.

36.—Baker, E. C. S. A new race of *Garrulax* and two new names for Indian birds. Bul. Bt. Orn. Cl. London 42 1921 p. 29.

37.—Baker, E. C. S. On a recently described Woodpecker (*Picus rubri-collaris*) from Siam. Ibis London 1921 pp. 1-2 pl. i.

38.—Baker, E. C. S. The Game-birds of India, Burma and Ceylon. J. Bombay N. H. Soc. 27 1921 pp. 417-430 651-664 28 1921 pp. 1-22 2 col. pls.

39.—Baker, E. C. S. Handlist of the "Birds of India." J. Bombay N. H. Soc. 27 1921 pp. 448-491 692-744 28 1921 pp. 85-106.

40.—Baldwin, S. P. Recent returns from trapping and banding birds. Auk Lancaster Pa. 38 1921 pp. 228-237.

41.—Baldwin, S. P. The marriage relations of the House Wren (*Troglodytes a. aedon*). Auk Lancaster Pa. 38 1921 pp. 237-244.

42.—Balfour, H. Varieties of the Common Gannet. Brit. Bds. London 15 1921 pp. 82-84 2 figs.

43.—Bangs, O. The birds of the American Museum of Natural History's Asiatic zoological expedition of 1916-1917. Bul. Amer. Mus. N. H. New York 44 1921 pp. 575-612.

44.—Bangs, O. and Penard, T. E. The name of the Eastern Hermit Thrush. Auk Lancaster Pa. 28 1921 pp. 432-434.

45.—Bangs, O. and Penard, T. E. Notes on some American Birds, chiefly Neotropical. Bul. Mus. Comp. Zoöl. Cambridge Mass. 64 1921 pp. 365-397. [*Crotophaga Dendroplex*, *Myiozetetes*, *Tyrannus*, *Pachyrhamphus*, *Allenia*, *Sicalis*.]

46.—Bangs, O. and Penard, T. E. *Lophotriccus* versus *Cometornis*. A new name for *Pachyrhamphus polychropterus costaricensis* Chubb. Proc. Biol. Soc. Washington 34 1921 p. 78.

47.—Bangs, O. and Penard, T. E. Descriptions of six new subspecies of American birds. Proc. Biol. Soc. Washington D.C. 34 1921 pp. 89-92. [*Geranospiza*, *Otus*, *Mecocerculus*, *Nuttallornis*, *Melanotis*, *Tangara*.]

Bangs, O. *vide* Thayer.

48.—Bannerman, D. A. *Eurystomus afer praedi* subsp. n. Bul. Bt. Orn. Cl. London 41 1921 pp. 70-71.

49.—Bannerman, D. A. Two new races of *Malimbus rubricollaris* described. Bul. Bt. Orn. Cl. London 41 1921 pp. 77-78.

50.—Bannerman, D. A. A new race of Negro Finch. Bul. Brit. Orn. Cl. London 41 1921 p. 126.

51.—Bannerman, D. A. New races of *Cyanomitra*, *Amblyospiza*, *Serinus*, *Anthreptes*. Bul. Bt. Orn. Cl. London 41 1921 pp. 135-138.

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52.—Bannerman, D. A. A new species of *Anthreptes*. Bul. Bt. Orn. Cl. London 42 1921 pp. 8-9.

53.—Bannerman, D. A. A new Paradise Flycatcher from Lagos. Bul. Bt. Orn. Cl. London 42 1921 p. 28.

54.—Bannerman, D. A. Remarks on rare and otherwise interesting birds contained in collections made by Mr. G. L. Bates in Southern Cameroon. Ibis London 1921 pp. 81-121.

55.—Bannerman, D. A. On the genus *Macrosphenus* Cassin, with special reference to the races of *Macrosphenus flavicans*. Ibis London 1921 pp. 121-125.

56.—Bannerman, D. A. A systematic list of the birds of Sierra Leone. Ibis London 1921 pp. 282-302.

57.—Bannerman, D. A. First impressions of Tunisia and Algeria. Ibis London 1921 pp. 387-414 4 pls.

Bannerman, D. A. *vide* Iredale.

Bannerman, D. A. *vide* Lowe.

58.—Bartels, M. Ueber einige für Java neue Vögel ii. Treubia Batavia 1 1921 pp. 161-162.

59.—Bassett, F. N. The nuptial flight of the Allen Humming bird. Condor Berkeley Cal. 23 1921 p. 37 fig.

Batson, O. V. *vide* Kuntz.

60.—Baxter, E. V. and Rintoul, L. J. The Pintail as a Scottish breeding species. Scot. Nat. Edinburgh 1921 pp. 37-42.

61.—Baxter, E. V. and Rintoul, L. J. Report on Scottish Ornithology in 1920, including migration. Scot. Nat. Edinburgh 1921 pp. 105-120 135-158.

62.—Beaufort, L. F. de. Further additions to the knowledge of the Avifauna of East Sumatra. Ardea Leiden 10 1921 pp. 171-174.

63.—Beckindale, F. Ostriches in the Northern Sudan. Sudan Notes & Rec. Khartoum 3 1920 p. 303.

- 64.—Beebe, W. A monograph of the Pheasants. Vol. ii pp. xvi + 269 24 col. pls. 24 photos 5 maps. Vol. iii pp. xvi + 204 24 col. pls. 21 photos 4 maps. London (Witherby) 1922 4to.
- 65.—Beebe, W. and Hartley S. A Christmas bird-census of Kartabo (Bt. Guiana). Zool. Soc. Bull. New York 24 1921 pp. 139-144 photos.
- 66.—Bennett, A. G. El Gorrion (*Passer domesticus*) en les islas Falkland. Hornero Buenos Aires 2 1921 p. 225.
- 67.—Bensley, B. A. An egg of *Struthiolithus chersonensis* Brandt. Univ. Toronto Studies Biol. ser. No. 19 1921 pp. 1-7 pl.
- 68.—Bent, A. G. Life histories of North American Gulls and Terns. Order Longipennes. Bul. U.S. Nat. Mus. Washington No. 113 pp. x + 340 77 half-tone pls. 16 col. pls.
- 69.—Bent, A. C. The probable status of the Pacific coast Skuas. Condor Berkeley Cal. 23 1921 pp. 78-80.
- 70.—Bergtold, W. H. The English Sparrow (*Passer domesticus*) and the motor vehicle. Auk Lancaster Pa. 38 1921 pp. 244-250.
- 71.—Bergtold, W. H. Mutants. Auk Lancaster Pa. 38 1921 p. 468.
- 72.—Berlioz, J. Note sur des Oiseaux de passage dans le bassin de la Seine. Bul. Muséum Paris for 1921 p. 41.
- 73.—Berlioz, J. Note sur une collection d'Oiseaux provenant de la Chine méridionale. Bul. Muséum Paris 1921 pp. 268-271.
- 74.—Berlioz, J. Étude d'une collection d'oiseaux provenant de l'Afrique Equatoriale. Rev. Fr. d'Orn. Paris 13 1921 pp. 6-9 37-41.
- 75.—Bickerton, W. Notes on birds observed in Hertfordshire during 1919. Trans. Hertf. Nat. Hist. Soc. 17 1921 pp. 274-282.
- 76.—Bierens de Haan, J. A. Een merkwaardig vinkenjournaal. Ardea Leiden 10 1921 pp. 123-128.
- 77.—Birch, G. Egret farming in Sind. J. Bombay N. H. Soc. 27 1921 pp. 944-947.
- 78.—Bishop, J. Bird notes from the Western Front. Ool. Rec. London 1 1921 pp. 8-15.
- 79.—Bishop, L. B. Description of a new Loon. Auk Lancaster Pa. 38 1921 pp. 364-370.
- 80.—Bishop, L. B. Notes from Connecticut. Auk Lancaster Pa. 38 1921 pp. 582-589.
- 81.—Blaauw, F. E. Ornithologische waarnemingen tusschen Buenos-Ayres en Santiago. Ardea Leiden 10 1921 pp. 1-9.
- 82.—Blaauw, F. E. Ober bastaardeenden (*Nettion crecca* ♂ × *Dafila acuta* ♀). Ardea Leiden 10 1921 p. 190.
- 83.—Blathwayt, F. L. Phenological report on first appearances of birds, etc., in Dorset during 1919. Proc. Dorset Nat. Hist. F. Cl. Dorchester 41 1921 pp. 95-107.
- 84.—Blomqvist, S. G. and Rosenberg E. Om fågellivet vid Närikes slätsjöar. Fauna och Flora Uppsala 1921 pp. 1-21 49-72 photos.
- 85.—Boase, H. The scarcity of Swallows [in Scotland]. J. Ministr. Agr. London 28 1921 pp. 526-530.
- 86.—Böker, H. Präparate zur Ableitung der Fluganpassung der Vögel. Verhandl. Anat. Ges. Ergänzungsheft zum Anat. Anz. 54 1921 pp. 214-219 3 text-figs.
- 87.—Bolam, G. Zoological Miscellanea. Vasculum Hexham 7 1921 pp. 26-27.
- 88.—Bolam, G. Little Bunting *Emberiza pusilla* Pallas; a new bird for Northumberland. Vasculum Hexham 7 1921 pp. 31-32.
- 89.—Bolam, G. Eagles in Northumberland and on the borders during winter of 1920-21. Vasculum Hexham 7 1921 pp. 104-106.
- 90.—Bond, E. The later flights of the Passenger Pigeon. Auk Lancaster Pa. 38 1921 pp. 523-527 1 pl.

- 91.—Bonhote, J. L. The nomenclature of plumage. *Ibis* London 1921 p. 348; also H. F. Witherby pp. 567-568 and J. L. Bonhote pp. 755-757.
- 92.—Bonhote, J. L. Subspecies and their part in evolution. *Ibis* London 1921 pp. 720-725.
- 93.—Booth, H. B. Nesting status of the Black-headed Gull in Yorkshire. *Naturalist* London 1921 pp. 159-166.
- 94.—Borrer, C. The nestling of the Crested Tit. *Brit. Bds.* London 15 1921 p. 18.
- 95.—Boubier, M. L'oiseaux et son milieu. pp. 1-287 Paris (Flammarion) 1922 8vo.
- 96.—Bowles, J. H. Nesting habits of the Nighthawk at Tacoma, Wash. *Auk* Lancaster Pa. 38 1921 pp. 203-217.
- 97.—Boxberger, L. von. Ornithologische Gelegenheitsbeobachtungen aus den östlichen Spanien. *Ornith. Monatschr.* Magdeburg 46 1920 pp. 65-77 81-91.
- 98.—Braess, C. G. Schillings. *Ornith. Monatschr.* Magdeburg 46 1920 pp. 99-101.
- 99.—Brannon, P. A. Notes on Alabama birds. *Auk* Lancaster Pa. 38 1921 pp. 463-464.
- 100.—Braun, F. Von der Vogelwelt der Dt.-Eylauer Parkstrasse. *Ornith. Monatsb.* Berlin 29 1921 pp. 23-29 40-44.
- 101.—Bretscher, K. Zahlenmässiges über den Vogelzug. *Biol. Zentralb.* Leipzig 41 1921 pp. 558-570.
- 102.—Brook, S. E. Bird-associations in Scotland. *Scot. Nat.* Edinburgh 1921 pp. 11-21 49-58.
- 103.—Brooks, A. A twelvemonth with the Shorebirds. *Condor* Berkeley Cal. 23 1921 pp. 151-156.
- Bulkley, L. C. *vide* Williamson.
- 104.—Burg, G. v. Misteldrosseln. *Tierwelt* Aarau 31 No. 1 1921 p. 2.
- 105.—B[urg], G. v. Weitere Mitteilungen über schweizerische Vögel. *Weidmann* Bulach 1921 No. 6 pp. 6-7.
- 106.—[Burg, G. v.] Der Engadiner Aha. *Weidmann* Bulach 1921 No. 9 p. 4.
- 107.—[Burg, G. v.] Schweizerische Grauspechte. *Weidmann* Bulach 1921 No. 10 p. 7.
- 108.—Burg, G. von. Herkunft der Vögel und Säugetiere der Alpen. *Weidmann* Olten [1912] pp. 1-8.
- 109.—Burgess, M. Breeding the Blackcap Lory (*Lorius lory*). *Bird-Notes* (3) 4 1921 pp. 155-189 photos.
- 110.—Burgess, M. L'élevage du Lori à calotte noire, *Lorius lory* (L.). *L'Oiseau* Paris 2 1921 pp. 145-151 photos.
- 111.—Burkitt, J. P. The relation of song to the nesting of birds. *Irish Nat.* Dublin 30 1921 pp. 1-10 113-124; see also Foster, N. H. *ibid.* pp. 20-21 and Campbell, D. C. pp. 75-77.
- 112.—Burleigh, T. D. Breeding birds of Warland, Lincoln Co., Montana. *Auk* Lancaster Pa. 38 1921 pp. 552-565.
- 113.—Butler, A. W. Some rare Indiana birds. *Proc. Indiana Acad. Sci.* Fort Wayne for 1920 1921 pp. 135-139.
- 114.—Butterfield, W. R. Notes on the local fauna and flora for 1919 and 1920. *Hastings and E. Sussex Nat.* 3 1920 pp. 125-133 156-169.
- 115.—Buxton, A. Spring birds at Geneva. *Trans. Norfolk. Nat. Soc.* 11 1921 (162-167).
- 116.—Buxton, P. A. Notes on birds from Northern and Western Persia. *J. Bombay N. H. Soc.* 27 1921 pp. 844-882 map.
- Buxton, P. A. *vide* Ticehurst.
- 117.—Buytendijk, F. J. J. Sens de localisation et acquisition d'habitudes chez les oiseaux. *Arch. Néerl. Physiol. Sci. Soc. Holl.* Harlem 5 1921 pp. 236-243 1 fig.
- 118.—Campbell, A. J. The Pallid Pardalote (*Pardalotus pallidus*). *Emu* Melbourne 21 1921 p. 1 pl. i.
- Campbell, D. C. *vide* Burkitt.
- 119.—Carié, P. Le Merle Cuisinier de l'île Maurice (*Lalage rufigaster* Sw.) *L'Oiseau* Paris 2 1921 pp. 2-5 2 col. pls.

120.—**Carroll, C. J.** Notes for seasons 1918–19–20, on the Irish colonies of Sandwich and Roseate Terns discovered in 1917. *Bt. Bds. London* **14** 1921 pp. 253–256.

121.—**Carter, T.** Remarks and notes on some Western Australian birds. *Emu Melbourne* **21** 1921 pp. 54–58; also **F. L. Whitlock** pp. 128–130.

122.—**Carter, T.** On some Western Australian birds collected between North-West Cape and Albany (950 miles apart). With nomenclature and remarks by **G. M. Mathews**. *Ibis London* **1921** pp. 48–81 map.

123.—**Cathelin, F.** Les migrations des Oiseaux pp. 1–168 11 figs. Paris (Delagrave) 1920 8vo.

124.—**Chaine, J.** Sur la puissance musculaire des membres postérieurs dans les races de Poules bonnes et mauvaises voilières. *Proc. verb. soc. sci. phys. nat. Bordeaux* **1918–1919** 1920 pp. 36–37.

125.—**Chance, E.** A third season's observations on a Cuckoo. *Bt. Bds. London* **14** 1921 pp. 218–232.

126.—**Chapel, F. de.** Le Flammant Rose en France. *L'Oiseau Paris* **2** 1921 pp. 102–106.

127.—**Chapin, J. P.** Descriptions of four new birds from the Belgian Congo. *Amer. Mus. Novit. New York* No. **7** 1921 pp. 1–9 3 figs.

128.—**Chapin, J. P.** Notes on a new Ospecker and other little-known birds of the Congo. *Amer. Mus. Novit. No. 17* 1921 pp. 1–16 6 text-figs.

129.—**Chapin, J. P.** West Africa the true habitat of *Glaucidium tephronotum*. *Auk Lancaster Pa.* **38** 1921 pp. 456–457.

130.—**Chapin, J. P.** The abbreviated inner primaries of nestling woodpeckers. *Auk Lancaster Pa.* **38** 1921 pp. 531–552 1 pl. 5 text-figs.

131.—**Chapin, J. P.** A note on the genus *Lamprolaima* in east and central Africa. *Ibis London* **1921** pp. 609–610.

132.—**Chapman, A.** Savage Sudan, its wild tribes, big game and bird-life. pp. xx+452 248 illustr. map London (Gurney & Jackson) **1921** 8vo.

133.—**Chapman, F. M.** Descriptions of apparently new birds from Bolivia, Brazil and Venezuela. *Amer. Mus. Novit. New York* No. **2** 1921 pp. 1–8.

134.—**Chapman, F. M.** Descriptions of proposed new birds from Colombia, Ecuador, Peru, and Brazil. *Amer. Mus. Novit. New York* No. **18** 1921 pp. 1–12.

135.—**Chapman, F. M.** In distribution of bird life in the Urubamba Valley of Peru. *Bul. U.S. Nat. Mus. No. 117* 1921 pp. 1–138 1 map 9 pls. (photos) 3 text-figs.

Chapman, F. M. *vide* Oberholser.

136.—**Chappellier, A.** Contribution à l'étude de l'hybridation et de l'intersexualité chez les oiseaux. *Suppl. 4 Bull. Biol. France-Belgique Paris* **1921** pp. 1–163 2 pls. 71 text-figs.

137.—**Chasen, F. N.** Notes on the breeding of the Lesser Kestrel (*Falco naumanni*). *Brit. Bds. London* **14** 1921 pp. 170–174.

138.—**Chasen, F. N.** Field notes on the birds of Macedonia. With special reference to the Struma Plain. *Ibis London* **1921** pp. 185–227.

Cheesman, R. E. *vide* Ticehurst.

139.—**Cherrie, G. K. and Reichenberger, E. M. B.** Descriptions of proposed new birds from Brazil, Paraguay and Argentina. *Amer. Mus. Novit. New York* No. **27** 1921 pp. 1–6.

140.—**Chisholm, A. H.** A new *Menura*: Prince Edward's Lyre-Bird. *Emu Melbourne* **20** 1921 pp. 221–223.

141.—**Chisholm, A. H.** Notes on two new birds [*Atrichornis* and *Pachycephala*]. *Emu Melbourne* **21** 1921 pp. 2–10 2 pls.

142.—**Chodat, R.** La génétique dans un croisement de poules. *C. R. Soc. Phys. Hist. Nat. Genève* **38** 1921 pp. 17–21.

143.—**Christiansen, J. C. E.** P. W. Heiberg Stiftsfysikus, Dr. Med., 24 Juni 1840–22 Juni 1920. *Dansk Orn. Tids. Kjöbenhavn* **15** 1921 pp. 97–98.

144.—**Chrostowski, T.** Sur les types d'oiseaux néotropicaux du Musée Zoologique de l'Académie des Sciences.

de Pétrograde. Ann. Zool. Mus. Polon. H. N. Warszawa 1 1921 pp. 9-30.

145.—Chrostowski, T. On some rare or little known species of South-Brasilian Birds. Ann. Zool. Mus. Polon Hist. Nat. Warszawa 1 1921 pp. 31-40.

146.—Chubb, C. The birds of British Guiana, based on the collection of Frederick Vasavour McConnell. Vol. ii pp. xcvi+615 10 col. pls. 8 photos. 214 text-figs London (Quaritch) 1921 8vo.

147.—Chubb, C. On new forms of South American birds. Ann. Mag. N. H. London (9) 7 1921 pp. 192-194. [*Microphila*, *Duncanula* gen. n.]

148.—Chubb, C. On new forms of South American birds. Ann. Mag. Nat. Hist. London (9) 8 1921 pp. 444-447. [*Saltator*, *Sturnella*, *Piranga*.]

149.—Chubb, C. *Pseudosicalis* gen. n. and *Notiocorys abariensis* sp. n. described. Bul. Bt. Orn. Cl. London 41 1921 pp. 78-79.

150.—Clark, E. R. and E. L. On the origin and early development of the lymphatic system of the chick. Contrib. Embryology 9 No. 45 pp. 447-482 7 pls. 15 text-figs Washington (Carnegie Inst.) 1920 4to.

Clark, H. W. *vide* Evermann.

151.—Clarke, S. R. An account of the birds met with during a two months' shooting trip in Northern Rhodesia. Ibis London 1921 pp. 611-621 pl. vii.

152.—Clarke, W. E. Obituary: Robert George Wardlaw-Ramsay. Ibis London 1921 pp. 538-540 portr.

153.—Clarke, W. E. The Greater Snow-Goose in the Scottish Solway area: a first record for Great Britain. Scot. Nat. Edinburgh 1921 pp. 69-70.

154.—Clarke, W. E. and Stenhouse, J. H. The Eastern Lesser White-throat, an addition to the British avifauna; and the Yellow-legged Herring-gull, a new record for Scotland at Fair Isle. Scot. Nat. Edinburgh 1921 pp. 179-180.

155.—Cleare, L. D. Feathered Friendships. [Field notes on Guianan birds.] Timehri Georgetown 7 1921 pp. 126-133 photos.

156.—Cole, C. F. Variations in the Black-backed Magpie (*Gymnorhina tibicen*). Emu Melbourne 21 1921 pp. 51-54 1 pl.

157.—Collinge, W. E. On the economic status of the Kingfisher, *Alcedo ispida* Linn. Ibis London 1921, pp. 139-150 1 text-fig.

158.—Collinge, W. E. The Starling; is it injurious to agriculture? J. Ministr. Agric. London 27 1921 pp. 1114-1121.

159.—Collinge, W. E. The scarcity of Swallows. Nature London 107 1921 p. 628.

160.—Collinge, W. E. Winter occurrence of the Common Tern in Scotland. Scot. Nat. Edinburgh 1921 p. 133.

161.—Collip, J. B. On the formation of hydrochloric acid in the gastric tubules of the Vertebrate stomach. Univ. Toronto Stud. Physiol. Ser. No. 35 1920 pp. 1-46 4 pls.

162.—Congreve, W. M. Further oological notes from Spain. Ool. Rec. London 1 1921 pp. 40-46.

163.—Cooke, M. T. Birds of the Washington region. Proc. Biol. Soc. Washington D.C. 34 1921 pp. 1-22.

164.—Coopman, L. Mort de M. Alphonse Dubois. Gerfaut Bruxelles 11 1921 p. 37.

165.—Coopman, L. Les faunes régionales. Aux abords des Fagnes. Gerfaut Bruxelles 11 1921 pp. 99-115.

Coopman, L., *vide* Raspail.

166.—Cory, C. B. Description of a new species of *Sittasomus* from north-eastern Brazil. Auk Lancaster Pa. 38 1921 p. 113.

167.—[Courtois, Fr.] Les Oiseaux du Musée de Zi-ka-wei in Mém concernant l'Histoire naturelle de l'Empire Chinois par des pères de la Compagnie de Jésus. vol. 5 pt. 1 1912 pp. 1-98, pt. ii 1914 pls. 1-13, pt. iii 1916 pp. 101-109 pls. 14-30, pt. iv 1918 pp. 111-121 pls. 31-45. Chang-hai (Imp. Miss. Cathol.) 4to.

168.—Coward, T. A. Notes on the Vertebrate Fauna of Lancashire and Cheshire. Birds. Lancs. and Cheshire Nat. 13 1921 pp. 62-65 252-256 14 1921 pp. 21-28 129.

169.—Crandall, L. S. The Blue Bird of Paradise. Zool. Soc. Bull. New York 24 1921 pp. 111-113 col. pl.

170.—Criddle, N. Birds that are little known in Manitoba. Can. Field-Nat. Ottawa 35 1921 pp. 133-135.

171.—Crook, S. Some notes on the Rook. Bt. Bds. London 15 1921 pp. 10-15 4 photos.

172.—Csörgey, T. Studien über den Vogelschutz in Ungarn in den Jahren 1919-1920. Aquila Budapest 27 1921 pp. 16-30.

173.—Dabbene, R. Los Petreles y los Albatros del Atlantico austral. Hornero Buenos Aires 2 1921 pp. 157-179.

174.—Daguerre, J. B. Sobre costumbres y nidificacion del Hornero (*Furnarius rufus*). Hornero Buenos Aires 2 1921 pp. 228-230.

175.—Dant, K. *Passer rufpectus* Bp. oder *Passer domesticus rufescens* Mott? Ornith. Beob. Basel 18 1921 pp. 53-55.

176.—Dedem, van. Geoorde Funt (*Podiceps nigricollis nigricollis*). Jaarb. Cl. Ned. Vogelk. 11 1921 pp. 34-37 photo.

177.—Delacour, J. *Liothrix astleyi* sp. n. Bul. Bt. Orn. Cl. London 41 1921 pp. 115-116.

178.—Delacour, J. Les Grues. Oiseaux de parc. L'Oiseau Paris 2 1921 pp. 37-92 double plate.

179.—Delacour, J. Le Rollier à longue queue (*Coracias caudatus*). L'Oiseau Paris 2 1921 pp. 69-71 col. pl.

180.—Delacour, J. L'Étourneau Améthyste (*Pholidauges verreauxi* Bocage). L'Oiseau Paris 2 1921 pp. 121-123 col. pl.

181.—Dewar, J. M. Homing ability in the nestling Willow-Warbler. Bt. Bds. London 15 1921 pp. 4-5.

182.—Dice, L. R. A bird census at Prescott, Walla Walla County, Washington. Condor Berkeley Cal. 23 1921 pp. 87-90 photo.

183.—Dietrich, F. Bericht über die Brutergebnisse 1920. A Norderoog B. Jordsand, etc. Ornith. Monatschr. Magdeburg 46 1921 pp. 7-13.

184.—Dietrich, F. Die Raubseeschwalbe in Deutschland. Ornith. Monatschr. Magdeburg 46 1921 pp. 34-42 map.

185.—Dietrich, F. Die Kaspische oder Raubseeschwalbe. Zs. Oologie Neumark 26 1921 pp. 22-26.

186.—Dietrich, M. O. Lausitzer Kraniche am Nest. Abhandl. Natf. Ges. Görlitz 28 1917 pp. 250-256 3 photos.

187.—Dobbrick, L. Beitrag zur Dohlenfrage. Orn. Monatsb. Berlin 29 1921 pp. 77-81.

188.—Döderlein, L. Betrachtungen über die Entwicklung der Nahrungsaufnahme bei Wirbelthieren. Zoologica Stuttgart 27 Leif 4 1921 pp. 1-59 birds 32-34.

189.—D'Ombain, E. A. A trip to the "Watercourse," north-west New South Wales. Emu Melbourne 21 1921 pp. 59-67.

190.—Donald, C. H. The Birds of Prey of the Punjab, pt. vii. J. Bombay N. H. Soc. 27 1921 pp. 606-615.

191.—Donald, C. H. Falconry. The catching of Hawks and Falcons. J. Bombay N. H. Soc. 27 1921 pp. 829-834 2 pls.

192.—Dove, H. S. Return of migrants and visitors. Emu Melbourne 20 1921 pp. 235-237.

193.—Drescher, E. Meine Ringversuche an Nestvögeln auf dem Rittergut in Ellguth bei Ottmachau, Oberschlesien 1912 bis 1914. Ber. Ver. Schles. Orn. 6 1920 pp. 55-64.

194.—Dupond, C. Excursion ornithologique an champ de bataille de la Flandre. Gerfaut Bruxelles 11 1921 pp. 1-13 map.

195.—Dwight, J. and Griscom, L. A revision of *Atlapetes gutturalis* with descriptions of three new races. Amer. Mus. Novit. New York No. 16 1921 pp. 1-4.

196.—Eckardt, W. R. Etwas vom Zug des Storchs aus vergangener Tagen. Orn. Monatsb. Berlin 29 1921 pp. 86-88.

197.—Eckardt, W. R. Die neueren Ergebnisse der Vogelzugforschung in Nord-amerika. Ein erweitertes, kritisches Referat. J. Ornith. Leipzig 69 1921 pp. 469–504.

198.—Eckardt, W. R. Die Vogelzugbeobachtungen in Verbindung mit dem öffentlichen Wetterdienst im Frühling 1920. J. Ornith. Leipzig 69 1921 pp. 570–572.

199.—Edwards, H. V. A south-coastal Selbourne [Birds of Bega N.S.W.]. Emu Melbourne 21 1921 pp. 42–48.

200.—Egge, G. Feststellung und Bekämpfung der Geflügeltuberkulose mit Hilfe von Tuberkulin. Arch. Tierheilk. Berlin 47 1921 pp. 175–197.

201.—Elliott, J. S. Pied Flycatcher nesting in Worcestershire. Bt. Bds. London 15 1921 p. 43.

202.—Evermann, B. W. Notes on the birds of Carroll, Monroe and Vigo Counties, Indiana. Proc. Indiana Acad. Sci. Fort Wayne for 1920 1921 pp. 315–401.

203.—Evermann, B. W. & Clark, H. W. Lake Maxinkuckee. 2 vols. pp. 660+512 many illustr. [birds vol. i pp. 481–579]. (State of Indiana) 1920.

204.—Ewart, J. C. The nestling feathers of the Mallard, with observations on the composition, origin and history of feathers. Proc. Zool. Soc. London 1921 pp. 609–642 10 pls. 14 text-figs.

205.—Ferguson, E. W. Notes on some Australian Tubinares—Petrels and Albatrosses. Emu Melbourne 21 1921 pp. 104–114.

206.—Fernandez, M. Sobre algunan embriones de Cripturidos. Rev. Mus. La Plata Buenos Aires 25 1921 pp. 70–96 3 pls. 7 text-figs.

Festa, E. vide Salvadori.

207.—Fiebrig, C. Algunos datos sobre aves del Paraguay. Hornero Buenos Aires 2 1921 pp. 205–213 9 figs.

208.—Finch-Davies, C. C. The birds of Tsumeb and Ovamboland. Bull. S. Afr. Biol. Soc. Pretoria No. 2 1918 pp. 25–40.

209.—Fisher, M. L. Birds singing at night. Proc. Indiana Acad. Sci. Fort Wayne for 1919 1921 pp. 239–240.

210.—Fjeldberg, H. Foregår der forrykkelser i vår fuglefauna? Norsk Orn. Tids. Stavanger No. 1 1921 pp. 45–50.

211.—Fleming, J. H. Notes on the hypothetical list of California birds. Condor Berkeley 23 1921 pp. 95–96.

212.—Fletcher, T. B. & Inglis, C. M. Some common Indian birds. Nos. 7–12—*Copsychus saularis*, *Arachnechthra asiatica*, *Oriolus luteolus*, *Terpsiphone paradisi*, *Zosterops palpebrosa*. Agric. J. Ind. Calcutta 16 1921 pp. 4–6 121–126 231–234 359–364 479–482 595–597 6 col. pls.

213.—Forbush, E. H. How much do Loons use their wings under water? Bul. Essex Co. Orn. Cl. Salem 1921 pp. 38–43.

214.—Forrest, H. E. Remarkable varieties of Magpie. Brit. Bds. London 15 1921 p. 41

215.—Forrest, H. E. Birds. Record Caradoc. F. Cl. Wellington Shrops. for 1920 1921 pp. 16–22.

216.—Forsius, R. Om ett fall av hopvuxna tvillingar hos grå flugsnappare. Medd. Soc. Faun. Fl. Fenn. Helsingfors 47 1921 pp. 7–8 218.

217.—Foster, N. H. Annotated list of the birds of Hillsborough. Proc. Belfast N. H. Soc. for 1920–21 1922 pp. 22–38 3 photos.

Foster, N. H. vide Burkitt.

218.—Frase, R. Ueber das Vorkommen des Uhus, *Bubo bubo* L. im Kreise Dt.-Krone, Westpr. Zs. Oologie Neumark 26 1921 pp. 15–17.

219.—Freuchen, P. Fuglelivet i Nordvestgrønland. Iagttagelser fra mit vindne. Dansk Orn. Tids. Kjöbenhavn 15 1921 pp. 101–108 photo.

220.—Friend, A. Frog eating a bird. [*Megalurus gramineus*]. Emu. Melbourne 21 1921 p. 68 fig.

221.—Froggatt, W. W. Some useful Australian Birds. pp. 1–85 col. pls. Sydney (Govt. Printer) 1921 8vo.

222.—Gabrielson, I. N. A question concerning the Cowbird. *Auk Lancaster Pa.* **38** 1921 pp. 459-460.

223.—Gabrielson, I. N. The birds of Marshall County, Iowa. II. *Proc. Iowa Acad. Sci. Des Moines* **26** [1920] pp. 47-75 6 photos.

Gabrielson, I. N. *vide* Kalmbach.

224.—Galasse, A. Compte rendu de recherches nidologiques faites dans le région de Bouillon. *Gerfaut Bruxelles* **11** 1921 pp. 82-86.

Gallagher, B. A. *vide* Ward.

225.—Garling, M. *Cuculus canorus* bei Berlin. *Zs. Oologie Neumark* **25** 1920 pp. 35-42.

226.—Gengler, J. Ein Beitrag zur Avifauna Belgiens. *Arch. Naturg. Berlin* **84** Abt. A heft 10 1920 pp. 85-139 6 photos.

227.—Gengler, J. Faunistische (ornithologische) Tagebuch-blätter aus Ungarn und Siobenbürgen. *Arch. Naturg. Berlin* **84** Abt. A. Heft 12 1920 pp. 1-51 2 pls. 2 text-figs.

228.—Gengler, J. Der Formenkreis *Emberiza citrinella* L. Eine zoogeographische Studie. *Arch. Naturg. Berlin* **85** Abt. A Heft 5 1920 pp. 75-102 1 map 1 pl.

229.—Gengler, J. Die Avifauna des Vierwaldstättersees und des Gott-hards. *Ornith. Beob. Basel* **18** 1921 pp. 161-167.

230.—Gengler, J. Die europäischen Gimpel (*Pyrrhula*). *Ornith. Monatsb. Berlin* **29** 1921 pp. 7-8.

231.—Gengler, J. Der Gefiederwechsel des mazedonischen Steinhuhns (*Alectoris*). *Orn. Monatsb. Berlin* **29** 1921 pp. 68-69.

232.—Ghigi, A. Le Perdix de la Cyrénaique (*Alectoris callolaema* Salvadori et Festa). *L'Oiseau Paris* **2** 1921 pp. 22-26 col. pl.

233.—Giersberg, H. Eihüllenbildung der Vögel, sowie Entstehung der Färbung der Voceleier. *Biol. Zentralb. Leipzig* **41** 1921 pp. 252-268 5 text-figs.

234.—Gignoux, C. Speed of flight of a Red-shafted Flicker. *Condor Berkeley Cal.* **23** 1921 pp. 33-34.

235.—Gignoux, C. The storage of almonds by the California Woodpecker. *Condor Berkeley Cal.* **23** 1921 pp. 118-121 1 photo.

236.—Gill, E. H. Nidification of the Himalayan Long-billed Vulture (*Gyps tenuirostris*). *J. Bombay N. H. Soc.* **27** 1921 pp. 951-952.

237.—Gladstone, H. S. A sixteenth century portrait of the Pheasant. *Brit. Bds. London* **15** 1921 pp. 67-69 photo.

238.—Gladstone, H. S. The last of the indigenous Scottish Capercaillies. *Scot. Nat. Edinburgh* **1921** pp. 169-177 2 figs.

239.—Gladstone, H. S. The value of birds. *Trans. Dumfries Nat. Hist. Soc.* [reprint] pp. 1-30 1921.

240.—Glegg, W. E. The nesting of the Little and Common Tern, and other species, on the Essex Coast. *Essex Nat. Stratford* **19** 1921 pp. 238-241 2 photos.

241.—Goormaghtigh, N. Organogenèse et Histogenèse de la capsule surrénale et du plexus coeliaque. *Arch. Biol. Liège-Paris* **31** 1921 pp. 83-165 4 pls. 13 text-figs.

242.—Gordon, A. Further notes on the nesting of the Storm Petrel (*Hydrobates pelagicus*). *Brit. Bds. London* **14** 1921 p. 175.

243.—Görnitz, K. New forms of *Emberiza*. *Falco Halle* **17** 1921 No. 2 p. 1.

244.—Götz, W. Strittige Punkte zur Storchforschung. *Ornith. Monatsschr. Magdeburg* **46** 1921 pp. 115-119.

245.—Graunes, J. Graatrost [*Turdus pilaris*] der overwinter. *Naturen, Bergen* **1920** p. 54.

246.—Greschik, E. Necrolog. Max Fürbringer, 1846-1920. *Aquila Budapest* **27** 1921 pp. 295-297.

247.—Grinnell, J. A striking case of adventitious coloration. *Auk Lancaster Pa.* **38** 1921 pp. 129-131.

248.—Grinnell, J. The criterion for a trinomial. *Auk Lancaster Pa.* **38** 1921 pp. 469-470.

249.—Grinnell, J. Concerning the status of the supposed two races of the Long-billed Curlew. Condor Berkeley Cal. 23 1921 pp. 21–27.

250.—Grinnell, J. The principle of rapid peering in birds. Univ. Cal. Chronicle Berkeley 1921 pp. 392–396.

251.—Grinnell, J. and Storer, T. I. Some birds of Yosemite National Park: from Hall's Handbook of the Yosemite National Park pp. 133–152 4 photos. New York (Putnam) 1921.

252.—Griscom, L. The Mocking bird of St. Thomas, W.I. Auk Lancaster Pa. 38 1921 p. 461.

253.—Griscom, L. Some notes on the winter avifauna of the Camargue. Ibis London 1921 pp. 595–609.

Griscom, L. *vide* Miller.

Griscom, L. *vide* Dwight.

254.—Groebbels, F. Die Morphologie des Vogelgehirns in ihren Beziehungen zur Biologie. Arch. ges. Physiol. Berlin 187 1921 pp. 299–325 1 text-fig. 1 plate.

255.—Groebbels, F. Experimentelle Untersuchungen über den Gassstoffwechsel der Vögel. Zs. Biol. München 70 1920 pp. 477–504.

256.—Gross, A. O. The Dickcissel (*Spiza americana*) of the Illinois prairies. Auk Lancaster Pa. 38 1921 pp. 1–26 163–184 13 pls.

257.—Grote, H. Ueber die zoologischen (hauptsächlich ornithologischen) Gebiete der ausserhalb der Tropen gelegenen Teile unseres Kontinents. Von Nikolai Sewerzow. Uebersetzt und eingeleitet von H. G. pp. 1–32 portr. München (Dultz) 1921 8vo.

258.—Grote, H. Aus der ornithologischen Literatur Russlands. Berichte und Übersetzungen. (1) Dr. B. Shitkow's ornithologische Beobachtungen auf der Samoeden-Halbinsel. (Ja-mal) pp. 1–16. (2) Die Vögel Nordwestrusslands: der Gouvernements Pskow, Nowgorod und St. Petersburg (Arbeiten von Dr. V. Bianchi und N. Sarudny pp. 17–32 (3) Zur Vogelfauna des westsibirischen Gouvernements Tobolsk. pp. 33–44 Zur Avifauna des Ustj-Ssyssolsk-

Kreises in Gouvernment Wologda von W. Andrejew und V. Bianchi pp. 46–56. Halle 1921 8vo.

259.—Grote, H. Neue Vogelformen. *Ptyrticus*, *Poliospiza*, *Emberiza*, *Dryoscopus*, *Laniarius*. Anz. Orn. Ges. Bay. No. 5 1921 pp. 38–41.

260.—Grote, H. Über eine Vogelsammlung aus West-Usambara. J. Ornith. Leipzig 69 1921 pp. 121–138.

261.—Grote, H. Vögel der Ukerewe-Insel des Victoria-Nyanza. J. Ornith. Leipzig 69 1921 pp. 406–426 457.

262.—Grote, H. Der Wiederkopf (*Upupa*) von Ober-Birma. Ornith. Monatsber. Berlin 29 1921 p. 50.

263.—Grote, H. *Eremomela pusilla tessmanni* nov. subsp. von Neu-Kamerun. Orn. Monatsb. Berlin 29 1921 pp. 84–85.

264.—Grote, H. *Pentholaea albifrons reichenowi* nov. subsp. Orn. Monatsb. Berlin 29 1921 p. 93.

265.—Grote, H. *Erythropygia quadrivirgata rovumae* nov. subsp. Orn. Monatsb. Berlin 29 1921, pp. 109–110.

266.—Guérin, C. Nidification anormale du Busard Montagu. Rev. Fr. d'Orn. Paris 13 1921 pp. 166–167.

Guérin, C. *vide* Raspail.

267.—Gurney, J. H. Early Annals of Ornithology. pp. iv + 240 1 pl. 1 map 35 text-figs. London (Witherby) 1921 8vo.

269.—Gurney, J. H. Ornithological notes from Norfolk for 1920. 27th annual report. Bt. Bds. London 14 1921 pp. 242–252.

269.—Gurney, J. H. The late H. M. Upcher. Brit. Bds. London 15 1921 pp. 16–17.

270.—Gurney, J. H. Obituary: Henry Morris Upcher. Ibis London 1921 pp. 540–543.

271.—Hafferl, A. Zur Entwicklungsgeschichte der Kopfartern beim Kiebitz. (*Vanellus cristatus*). Anat. Hefte Wiesbaden I. Abth. 59 1921 pp. 521–574 6 plates 6 text-figs.

272.—Hall, R. Australian bird maps. pp. 1–220 3 pls. 101 maps Hobart (publ. by author) 1922 sm. 8vo.

273.—Hankin, E. H. The problem of soaring flight. *Proc. Cambridge Phil. Soc.* 20 1921 pp. 219–227.

274.—Hanna, G. D. The Pribilof Sandpiper [*Arquatella pilocnemis*]. *Condor Berkeley Cal.* 23 1921 pp. 50–57 1 fig.

Hanna, G. D. *vide* Mailliard.

275.—Hansen, M. E. Fugleholmen Madstedsborg. Flora og Fauna Kjöbenhavn 1921 pp. 23–26.

276.—Hanson, B. Trekkfugler overvintrende ved Kristiansund, 1920–21. *Norsk Orn. Tids.* Stavanger No. 1 1921 pp. 55–56.

Harper, F. *vide* Murphy.

277.—Harris, J. A. and Lewis, H. R. The second year record of birds (domestic fowls) which did not lay during individual months of the pullet year. *Science New York* 54 1921 pp. 224–226.

278.—Harris, J. A. and others. The egg records of limited periods as criteria for predicting the egg production of the White Leghorn fowl. *Genetics Baltimore* 6 1921 pp. 264–309.

279.—Hartert, E. Die Vögel der palaarktischen Fauna. Heft xiii–xiv, pp. i–xxix + 1601–1764 9 figs. Heft xv pp. 1765–1822 10 figs. Heft xvi pp. 1893–2020 2 figs. Heft xvii pp. 2021–2148. Berlin (Friedlander) 1921 8vo.

280.—Hartert, E. *Anthreptes yokanae* and *Phyllastrephus rabai* spp. n. *Bul. Bt. Orn. Cl. London* 41 1921 pp. 63–64.

281.—Hartert, E. A new *Euprioides* described. *Bul. Bt. Orn. Cl. London* 41 1921 p. 120.

282.—Hartert, E. A new *Pycnotus*. *Bul. Bt. Orn. Cl. London* 41 1921 p. 126.

283.—Hartert, E. An albinistic *Halcyon chloris*. *Bul. Bt. Orn. Cl. London* 42 1921 pp. 7–8.

284.—Hartert, E. Report of a sub-committee, consisting of Dr. E. H. Messrs. T. Iredale and W. L. Sclater, on amendments and proposed alterations to the names in the B.O.U.

List of British Birds, as accepted by the Committee of the B.O.U. on the British Bird List. *Ibis London* 1921 pp. 310–316.

285.—Hartert, E. Captain Angus Buchanan's Air Expedition. IV. The Birds collected by Capt. Angus Buchanan during his journey from Kano to Air or Asben. *Nov. Zool. Tring* 28 1921 pp. 78–141 pls. i–ix.

Hartley, I. *vide* Beebe.

Haviland, M. D. *vide* Meinertzhagen.

286.—Havre, G. van. Observations ornithologiques faites du 1er mai 1920 au 30 avril 1921. *Gerfaut Bruxelles* 11 1921 pp. 38–57.

287.—Havre, G. van. Faune de Belge—a propos des Aigles criards—*Aquila clanga* Pallas et *Aquila pomarina* Brehm. *Gerfaut Bruxelles* 11 1921 pp. 73–80 photo.

288.—Hellmayr, C. E. Twelve new Neotropical birds [*Henicorhina*, *Thryophilus*, *Pheugopedius*, *Myadestes*, *Tangara*, *Chlorospingus*, *Mecocerculus*, *Xenops*, *Thalurania*]. *Anz Orn. Ges. Bay.* No. 4 1921 pp. 25–32.

289.—Hellmayr, C. E. Zwei neue neotropische Vogelformen. [*Thryophilus*, *Nonnula*]. *Anz. Orn. Ges. Bay. München* No. 5 1921 pp. 41–42.

290.—Hellmayr, C. E. Remarques sur les espaces neotropicales du genre *Anthus*. *Hornero Buenos Aires* 2 1921 pp. 180–193.

291.—Hellmayr, C. E. Review of the birds collected by Alcide d'Orbigny in South America, Parts i, ii. *Nov. Zool. Tring* 28 1921 pp. 171–213 230–276.

292.—Helms, O. H. Chr. C. Mortensen, 27 Aug. 1856–7 Juin 1921. *Dansk. Orn. Tids. Kjöbenhavn* 15 1921 pp. 93–97 portr.

293.—Hennemann, W. Zum Vorkommen des Nachtigall im Sauerlande. *Jahresber. Prov. Ver. Wiss. Munster* 44 1916 pp. 169–173.

294.—Hennemann, W. Zum Eintreffen des Fitislaubvogels im Sauerlande 1921. *Orn. Monatsb.* 29 1921 pp. 85–86.

295.—Hennemann, W. Über das Auftreten des Seidenschwanzes im Sauerlande in 1920–21. Orn. Monatsb. Berlin 29 1921 pp. 103–105.

296.—Hens, P. Over den trek van *Turdus viscivorus* L. (Gröote lijster). Jaarb. Cl. Ned. Vogelk. Delft 11 1921 pp. 38–39.

Henshaw, H. W. vide Ritter.

297.—Hess, A. IV. Bericht über die Tätigkeit der Schweizerischen Zentralstation für Ringversuche in Bern im Jahre 1920. Ornith. Beob. Basel 18 1921 pp. 116–120 129–133.

298.—Hess, A. Gelege von *Apus melba*. Ornith. Monatsb. Berlin 29 1921 p. 12.

299.—Hesse, E. *Coccyzus* und *Oxylophus*. J. Ornith. Leipzig 69 1921 pp. 40–41.

300.—Hesse, E. Einiges über Nahrung. Ornith. Monatsber. Berlin 29 1921 pp. 5 & 7.

301.—Hesse, E. Zunahme von *Coracias* als Brutvogel im Grunewald. Ornith. Monatsber. 29 1921 pp. 47–49.

302.—Hesse, R. Das Herzgewicht der Wirbeltiere. Zool. Jahrb. Jena Abt. allg. Zool. 38 1921 pp. 243–364.

303.—Heurn, F. C. van & Snouckaert van Schauburg, R. C. E. Baron. Avifaunistische Studien in de Gajolanden. Jaarb. Cl. Ned. Vogelk. Delft No. 11 1921 pp. 4–19.

304.—Heyder, R. Bemerkungen über das Vorkommen von Bart- und Uralkauz in der sächsischen Oberlausitz. Orn. Monatsb. Berlin 29 1921 pp. 81–84.

305.—Hiden, R. B. Description of a peculiar yolk mass in the oviduct of a hen. Amer. Nat. New York 55 1921 pp. 373–377 1 fig.

306.—Hildebrandt, H. Das Vorkommen von *Agrobates g. galactodes* Tem. und *A. g. familiaris* Ménétr. auf Helgoland. Orn. Monatsb. Berlin 29 1921 pp. 71–73.

307.—Hilden, I. Något om faunan och florán på Runö. Fauna och Flora Uppsala 1921 pp. 216–226 map photos.

308.—Hildén, I. Lintutieteellisiä havaintoja Jaakkimasta ja Juuasta. [Observations at Jaakkima, Finland.] Medd. Soc. Faun. Fl. Fenn. Helsingfors. 47 1921 pp. 59–62 218 219.

309.—Hingston, R. W. G. A list of the Birds of Dharmasala. J. Bombay N. H. Soc. 27 1921 pp. 555–572 3 pls. 1 text-fig.

310.—Hoffman, R. A mating performance of the Least Tern. Auk Lancaster Pa. 38 1921 pp. 596–597.

311.—Hoffmann, B. Gegenansichten zu Schmitt und Stadlers "Vogelsprache." Ornith. Monatsb. 29 1921 pp. 44–47.

312.—Hoffmann, B. Rufe und Gesang der Goldammer (*Emberiza citrinella* L.). Verhandl. Orn. Ges. Bay. München 15 1921 pp. 58–68.

313.—Hollaender, P. P. Über den Ursprung der aus dem Mittelhirn im dorsalen Längsbündel absteigenden Nervenfasern bei Sauropsiden. Jenaische Zs. Naturw. 55 1919 pp. 203–220 11 text-fig.

314.—Holt, E. G. Annotated list of the Avery Bird-collection in the Alabama Museum of Natural History with biographical sketch of Dr. W. C. Avery by his sister Miss Mary E. Avery. Geol. Surv. Alabama Mus. Paper 4 1921 pp. 1–142 portr.

315.—Honigmann, H. Untersuchungen über Lichtempfindlichkeit und adaptierung des Vogelauges. Arch. ges. Physiol. Berlin 189 1921 pp. 1–72 9 figs.

316.—Hopwood, C. The nidification of the Masked Finfoot (*Heliopais personata*). J. Bombay N. H. Soc. 27 1921 pp. 634–637.

317.—Horn, P. W. The birds of West Thurrock Marsh. Essex Nat. Stratford 19 1921 pp. 262–266.

318.—Hornbeck, J. W. Fall and winter birds of Northfield, Minnesota. Amer. Midl. Nat. 7 1921 pp. 69–74.

319.—Hørring, R. Fuglene ved de danske Fyr i 1919: Videns. Medd. nat. For. Kjöbenhavn 72 1921 pp. 181–220.

320.—Hortling, I. *Parus borealis* (Nordische mattköpfige Sumpfmöise, schwed. talltita, finn. homotiainen). Orn. Monatsb. Berlin 29 1921 pp. 57–60.

321.—Howe, F. E. The genus *Climacteris* (Tree-Creepers). Emu Melbourne 21 1921 pp. 32–41.

322.—Howe, J. L. Lawrence's Warbler [in Virginia]. Science New York 54 1921 p. 302.

323.—Howell, A. H. A list of the birds of Royal Palm Hammock, Florida. Auk Lancaster Pa. 38 1921 pp. 250–264.

324.—Hunt, C. J. Notes on the winter and early spring birds of south-eastern Arkansas. Auk Lancaster Pa. 38 1921 pp. 370–381, also pp. 610–611.

325.—Hunt, R. Nesting Pine Grosbeaks in Plumas County, California. Condor Berkeley Cal. 23 1921 pp. 187–190.

326.—Huxley, J. S. Obituary: W. Warde Fowler. Brit. Bds. London 15 1921 pp. 143–144.

327.—Ibarth, A. Mitteilungen aus Danzig und Umgegend. Orn. Monatsb. Berlin 29 1921 pp. 105–108.

328.—Idrac. Études experimentales sur le vol à voile. C. R. Acad. Sci. Paris 172 1921 pp. 1161–1164.

Inglis, C. M. *vide* Fletcher.

329.—Ingram, C. Nestling downs of Hawks. Brit. Bds. London 14 1921 pp. 191–192.

330.—Ingram, G. C. S. Field-notes on the Blackcap. Brit. Bds. London 15 1921 pp. 78–81.

331.—Iredale, T. A new form of the Grey Phalarope. Bul. Bt. Orn. Cl. London 42 1921 p. 8; see also R. Meinertzhagen & F. C. R. Jourdain pp. 25–27.

332.—Iredale, T. & Bannermann, D. A. Note on generic names *Textor* and *Hyphantornis*. Bul. Bt. Orn. Cl. London 41 1921 pp. 128–129.

Iredale, T. *vide* Hartert.

Iredale, T. *vide* Mathews.

Iredale, T. *vide* Sherborn.

333.—Izuka, A. & Matsuura, K. Catalogue of the zoological specimens exhibited in the Natural History Department, Tokyo Imperial Museum (Vertebrata). Aves pp. 29–77 1 col. pl. Tokyo (Imp. Mus.) 1920 8vo [in Japanese and English].

334.—Jackson, A. C. On the occurrence of the Iceland Redshank in the British Islands. Bt. Bds. London 14 1921 pp. 280–281.

Jackson, A. C. *vide etiam* Meinertzhagen, A. C.

335.—Jackson, S. W. Second trip to Macpherson range, south-east Queensland. Emu Melbourne 20 1921 pp. 195–209 photos.

336.—James, H. W. Notes on birds occurring in the Cradock and Tarkastad districts, Cape Province, with nesting dates. S. Afr. J. Nat. Hist. Pretoria 3 1921 pp. 174–198.

337.—Jespersen, P. Nattergalen (*Luscinia philomela* L.) i Danmark. Dansk Orn. Tids. Kjöbenhavn 15 1920 pp. 1–24 2 photos. 1 map.

338.—Jewett, S. G. Additional notes on the water and shore-birds of Netarts, Oregon. Condor Berkeley Cal. 23 1921 pp. 91–93 2 photos.

339.—Johnson, C. E. Additions to the birds of Lake County, Minnesota. Auk Lancaster Pa. 38 1921 pp. 124–126.

Jokl, A. *vide* Lindahl.

340.—Jones, A. E. Bird-notes from the Campbellpur-Attock district, Western Punjab. J. Bombay N. H. Soc. 27 1921 pp. 794–802.

341.—Jordans, A. v. Eine Ergänzung zu C. Kayser's: Die Vögel der Umgebung von Lissa i/P. Ornith. Monatsb. Berlin 49 1921 p. 34.

342.—Jouan, C. & Staub, A. Étude sur la peste aviaire. Ann. Inst. Pasteur Paris 34 1920 pp. 343–357.

343.—Jourdain, F. C. R. Remarks on the eggs and nests of Spitsbergen Geese. Bul. Bt. Orn. Cl. London 42 1921 pp. 27–28.

344.—Jourdain, F. C. R. Ornithological Observations. The Oxford Exped. to Spitsbergen 1921. Nature London 108 1921 pp. 151–153.

345.—Jourdain, F. C. R. Ornithological Report for 1920. Proc. Rep. Ashmolean Nat. Soc. Oxford for 1920 1921 pp. 12-14.

346.—Jourdain, F. C. R. Les oiseaux de la Forêt de Mamara et des environs de Rabat. Rev. Fr. d'Orn. Paris 13 1921 pp. 128-133 149-153.

Jourdain, F. C. R. *vide* Raw.

347.—Kaiser, L. Quelques remarques sur le clignement des yeux chez les oiseaux. Arch. Neerl. Physiol. Sci. Soc. Holl. Haarlem (3) 6 1921 pp. 25-47 7 figs.

348.—Kalmbach, E. R. & Gabrielson, I. N. Economic value of the Starling in the United States. Bul. U.S. Dept. Agr. Washington No. 868 1921 pp. 1-66 col. pl.

349.—Kayser, C. Die Vögel der Umgebung von Lissa i./P. J. Ornith. Leipzig 69 1921 pp. 218-239.

350.—Keibel, F. Der Schwanzdarm und die Bursa Fabricii bei Vogelembryonen. Anat. Anz. Jena 54 1921 pp. 301-303 1 fig.

351.—Kennard, F. H. Moulds and Bacteria on egg collections. Auk Lancaster Pa. 28 1921 pp. 345-356.

352.—Kennedy, J. N. Notes on birds in South Russia. Ibis London 1921 pp. 453-465.

353.—Kermode, F. Notes on the Chinese Starling (*Acridotheres cristatellus*) [in British Columbia]. Rep. Prov. Mus. Bt. Columb. Victoria for 1920 1921 pp. 20-21.

354.—Kessel, J. F. Flocking habits of the California Valley Quail. Condor Berkeley Cal. 23 1921 pp. 167-168.

355.—Kimball, H. H. Notes from southern Arizona. Condor Berkeley Cal. 23 1921 pp. 57-58.

356.—King, H. H. Natural History Notes [in the Sudan]. Sudan Notes Rec. Khartoum 4 1921 pp. 39-43 45-46.

357.—Kinloch, A. P. Rough notes on the avifauna of the Nelliampathy hills. J. Bombay N. H. Soc. 27 1921 pp. 939-944 28 1921 pp. 279-280.

358.—Kinnear, N. B. New races of *Certhia* and *Mirafra*. Bul. Bt. Orn. Cl. London 41 1921 pp. 139-140.

359.—Kleinschmidt, O. Realgattung *Falco Peregrinus*. Eine Monographie, etc. (Forts.) pp. 63-78; *Parus Salicarius* pp. 7-34; *Loxia Coccothraustes* pp. 1-2; *Loxia flavirostris* pp. 1-2 Berajah Halle 1919-1921.

360.—Kloss, C. B., Note on the type localities and taxonomy of recently described Siamese birds. Bul. Bt. Orn. Cl. 41 1921 pp. 75-76.

361.—Kloss, C. B. New and little known Oriental birds. J. Fed. Malay Mus. Kuala Lumpur 10 1921 pp. 207-213.

362.—Kloss, C. B. Notes on some Oriental birds. J. Fed. Malay Mus. Kuala Lumpur 10 1921 pp. 214-228.

363.—Kloss, C. B. More notes on Siamese birds. J. Nat. Hist. Soc. Siam Bangkok 4 1921 pp. 51-57.

364.—Kloss, C. B. A new race of Nutmeg-Pigeon from Pulo Condore. J. Nat. Hist. Soc. Siam Bangkok 4 1921 p. 191.

Kloss, C. B. *vide* Robinson.

365.—Knobel, E. M. Sexing Parrots. Avicult. Mag. London 12 1921 pp. 4-6, also Welch, F. D. pp. 111-112.

366.—Koch, R. Die Vögel der Umgegend von Anholt und des Niederrheins. Jahresber. Prov. Ver. Wiss. Münster 44 1916 pp. 132-153.

367.—Koefoed, A. Fuglelivet ved Holmsland klit og Sendervig Strand i Juni 1918. Dansk Orn. Tids. Kjobenhavn 15 1921 pp. 83-86.

368.—Koenig, A. Die Fänger (Captores) Aegyptens. J. Ornith. Leipzig 69 1921 pp. 426-456.

369.—Kolthoff, K. Om flyttfåglar. Efter studier vid Ölands södra udde. Fauna och Flora Uppsala 1921 pp. 88-94.

370.—Kolthoff, K. Om växlingar i Ölands fågellif. Fauna och Flora Uppsala 1921 pp. 262-269.

371.—[Kopman, K. H.] Wild life resources of Louisiana, their return, value and protection. pp. 1-164. New Orleans (State of Louisiana, Dept. of Conservation) 1921 8vo.

372.—Krausse, A. Das principium causalitatis und die moderne Naturwissenschaft. Arch. Naturg. Berlin 81 Abt. A 1915 pp. 103-119.

373.—Kricheldorf, A. Einiges über die Felsenschwalbe (*Hirundo rupestris*). Zs. Oologie Neumark 25 1920 pp. 19-20.

374.—Krohn, H. Altes und Neues über den Farbensin der Vögel. J. Ornith. Leipzig 69 1921 pp. 505-512.

375.—Kuntz, A. & Batson, O. V. Experimental observations on the histogenesis of the sympathetic trunks in the chick. J. Comp. Neur. Philadelphia 32 1920 pp. 335-345 3 figs.

376.—Kuroda, N. Descriptions of seven new forms of Japanese and Corean Picidae. Auk Lancaster Pa. 38 1921 pp. 575-582.

377.—Kuroda, N. On a collection of birds from Hainan. Dobuts. Zasshi Tokio 1921 pp. 389-393 [in Japanese].

378.—Kuroda, N. The moulting of some Charadriine Birds [in Japanese]. Tori Tokyo 3 No. 11 1921 photos.

379.—Labitte, A. Quelques observations ornithologiques en régions libérées. Rev. Fr. d'Orn. Paris 13 1921 pp. 9-12 60-62.

380.—Labitte, A. Quelques observations sur la Buse Commune. Rev. Fr. d'Orn. Paris 13 1921 pp. 26-28 57-59.

381.—La Touche, J. D. D. New races of *Sphenocercus*, *Bubo*, *Dryobates*, *Serilophus*, *Nittava*, *Anthipes*, *Trochalopterum*, *Pomatorhinus*, *Pellorneum*, *Stachyris*, *Tesia*, *Heteroxenicus*, *Minla*, *Merula*, *Urosphena*, *Suthora*, *Sitta*, *Zosterops*, *Arachnothera*. Bul. Bt. Orn. Cl. London 42 1921 pp. 12-18 29-32.

382.—La Touche, J. D. D. Notes on the birds of North-East Chihli, in North China. Pt. iii. Ibis London 1921 pp. 3-48.

383.—Laubmann, A. Verzeichnis der bisher für das bayerische Allgäu nachgewiesenen Vogelarten. Arch. Naturg. Berlin 87 Abt. A Heft 4 1921 pp. 297-307.

384.—Laubmann, A. Beiträge zur Ornithologie von Pfronten im Allgäu. Arch. Naturg. Berlin 87 Abt. A Heft 6 1921 pp. 215-228.

385.—Laubmann, A. Die Vogelwelt am Elbsee bei Aitrang im Allgäu. Eine ökologische Studie. Arch. Naturg. Berlin 85 Abt. A Heft 12 1920 pp. 78-97.

386.—Laubmann, A. Die quaternäre Nomenclatur und ihre Anwendung in der Ornithologie. Jaarb. Cl. Ned. Vogelk. Delft 11 1921 pp. 40-50.

387.—Laubmann, A. Über die Verbreitung des Drosselrohrsängers *Acrocephalus a. arundinaceus* (L.) in bayrischer Algäu. Orn. Monatsber. Berlin 29 1921 pp. 1-4.

388.—Laubmann, A. Zur Verbreitung der Uferschwalbe (*Riparia riparia riparia*) im südlichen Bayern. Orn. Monatsb. Berlin 29 1921 pp. 63-68.

389.—Lauterborn, R. Die Kolbenente (*Netta rufina* Pallas) als Brutvogel des Bodensees. Verhandl. Orn. Ges. Bay. München 15 1921 pp. 3-9.

390.—Lavauden, L. Contribution a l'étude des formes méditerranéennes du Faucon Pèlerin. Rev. Fr. d'Orn. Paris 13 1921 pp. 67-72 89-93 4 figs.

391.—Law, J. E. A feeding habit of the Varied Thrush. Condor Berkeley Cal. 23 1921 p. 66.

392.—Lawson, R. and Stubbs, A. P. Ipswich river bird trip 1921. Bul. Essex Co. Orn. Cl. Salem 1921 pp. 55-67.

✓ 393.—Lebedinsky, N. G. Zur Syndesmologie der Vögel. Anat. Anz Jena 54 1921 pp. 8-15 4 figs.

394.—Leege, O. Brutergebnis der Vogelkolonie Memmert im Jahre 1920. Ornith. Monatschr. Magdeburg 46 1921 pp. 177-190 4 figs.

395.—Leichtentritt, B. Ueber die Nahrungsannahme junger Vögel. Zs. Biol. München 69 1919 pp. 564-567.

396.—Leopold, A. A hunter's notes on Doves in the Rio Grande Valley. Condor Berkeley Cal. 23 1921 pp. 19–21.

397.—Leopold, A. Weights and plumage of Ducks in the Rio Grande Valley. Condor Berkeley Cal. 23 1921 pp. 85–96.

398.—Le Souef, A. S. Notes on birds observed at Ebor and the Nullabor plain. Emu Melbourne 21 1921 pp. 125–128 photo.

399.—Levander, K. M. Obituary notice: J. A. Palmén. Medd. Soc. Fauna et Fl. Fenn. Helsingfors 45 1920 pp. 227–233 2 portr.

400.—Lewis, H. F. A nesting of the Philadelphia Vireo. Auk Lancaster Pa. 38 1921 pp. 26–44 185–202.

Lewis, H. R. *vide* Harris.

401.—Lie-Pettersen, O. J. Have-sangeren (*Sylvia simplex* Lath.). Naturen Bergen 45 1921 pp. 271–281 2 figs.

Lieure, C. *vide* Peyron.

402.—Lima, J. L. Aves colligidas nos Estados de São Paulo, Matto Grosso e Bahia com algumas formas novas. Rev. Mus. Paulista 12 pt. ii 1920 pp. 91–106 2 pls.

403.—Lincoln, F. C. The history and purposes of bird banding. Auk Lancaster Pa. 38 1921 pp. 217–228.

404.—Lincoln, F. C. American Common Tern recovered in West Africa. Auk Lancaster Pa. 38 1921 pp. 453–454.

405.—Lincoln, F. C. Instructions for bird banding. U.S. Dept. Agr. Department Circular 170 1921 pp. 1–18 11 text-figs.

406.—Lindahl, C. und Jokl, A. Über den Verschluss der fötalen Augenbecherspalte, die Entwicklung der Sehnerveninsertion und die Anlage des Pecten bei Vögeln. Upsala Läkaref. Forh. 26 1921 xix pp. 1–20 2 plates.

407.—Lindner, F. Die Wiederaufzucht der Bartmeise als Brutvogel Pommerns nach 84 jähriger Verschollenheit und ihr Vorkommen in übrigen Deutschland. Abh. Ber. Pomm. Nat. Ges. Stettin 2 1921 pp. 43–55.

408.—Lindner, F. Neuauffindung der Bartmeise (*Panurus biarmicus* L.) als Brutvogel am Madüsee in Pommern. Ornith. Monatschr. Magdeburg 46 1921 pp. 149–155.

409.—Lippincott, W. A. Further data on the inheritance of blue in poultry. Amer. Nat. New York 55 1921 pp. 289–327 3 pls. 1 fig.

410.—Livesey, T. R. Nest of the Nakta or Comb Duck (*S. melanonotus*). J. Bombay N. H. Soc. 27 1921 pp. 637–638 2 photos.

411.—Lloyd, H. The protection of migratory birds in Canada. Agric. Gaz. Canada Ottawa 8 1921 p. 68.

412.—Lomont, Père. Mes souvenirs sur la Buse Commune. Rev. Fr. d'Orn. Paris 13 1921 pp. 110–112.

413.—Long, S. H. Obituary: the late Col. H. W. Feilden, C.B. British Bds. London 15 1921 pp. 71–72.

414.—Long, S. H. Wild bird protection in Norfolk. Trans. Norfolk Nat. Soc. 11 1921 pp. 194–199.

415.—Lönnberg, E. En hvitnackad svärta, *Oidemia perspicillata* L., funnen vid Häfringe. Fauna och Flora Uppsala 1921 pp. 115–119 photo.

416.—Lönnberg, E. Den gulfotade gråtruten, *Larus argentatus cachinnus* Pallas, en för Sverige ny fågel. Fauna och Flora Uppsala 1921 pp. 126–130.

417.—L[önnberg], E. En albinstisk hafstrut. Fauna och Flora Uppsala 1921 pp. 136–138 photo.

418.—Lönnberg, E. Bidrag till morkullans (*Scolopax rusticola*) biologi. Fauna och Flora Uppsala 1921 pp. 164–174 map and photos.

419.—Lönnberg, E. Bidrag till kännedomen om ormvråkens näringsvanor. Svens Jägareförb. Tidskr. 59 1921 pp. 257–263 1 pl.

420.—Lönnberg, E. & Palmgren, R. Nagra ord om gamar i Europa. Gåsgamen *Gyps fulvus* Gmel. anträffad i Finland. Fauna och Flora Uppsala 1921 pp. 270–274.

421.—Loomis, L. M. Remarks on the migration of southern hemisphere Albatrosses and Petrels. Auk Lancaster Pa. 38 1921 pp. 527–531.

422.—Lourbet, J. Le sans de l'orientation chez les oiseaux. *Rev. Sci. Paris* 59 1921 pp. 694-5.

423.—Lowe, P. R. On a new Willow-Titmouse from northern Italy. *Ann. Mag. Nat. Hist. London* (9) 8 1921 pp. 443-444.

424.—Lowe, P. R. New Seed-Snipe, Whimbrel and Lapwing described. *Bul. Bt. Orn. Cl. London* 41 1921 pp. 109-111.

425.—Lowe, P. R. New races of *Oceanites* and *Puffinus*. *Bul. Bt. Orn. Cl.* 41 1921 pp. 140-141.

426.—Lowe, P. R. Remark on the status and systematic position of *Poecile poecilopsis*, *Oreophilus ruficollis*, *Charadrius placidus*. *Bul. Bt. Orn. Cl. London* 42 1921 pp. 18-19.

427.—Lowe, P. R. & Mackworth-Praed, C. The last phase of the subspecies. *Ibis London* 1921 pp. 344-347.

428.—Lowe, W. P. The birds of Tasso and adjoining Islands of the Rokelle River, Sierra Leone. With notes by D. A. Bannerman. *Ibis London* 1921 pp. 265-282 1 map.

429.—Lucanus, F. von. Vortrag über das Orientierungsvermögen der Vögel. *J. Ornith.* 69 1921 pp. 106-111.

430.—Lucanus, F. von. Zur Frage der Mimikry der Kuckuckseier. *J. Ornith. Leipzig* 69 1921 pp. 239-258.

431.—Lucanus, F. von. Ueber des Orientierungsvermögen der Zugvögel. *J. Psychol. u. Neurol. Leipzig* 26 1921 pp. 300-313.

432.—Lynch, R. S. The cultivation in vitro of liver cells from the chick embryo. *Amer. J. Anat. Philadelphia* 29 1921 pp. 281-311 25 figs.

433.—Lynes, H. Notes on the Natural History of Jebel Marra. *Sudan Notes and Records* 4 1921 pp. 119-137.

434.—McAtee, W. L. The "One-letter" rule for generic names in zoology. *Amer. Nat. New York* 55 1921 pp. 89-96.

435.—McAtee, W. L. Farm help from the birds. *Yearbook U.S. Dept.*

Agric. Washington for 1920 1921 pp. 253-270 many figs.

436.—Macfarlane, A. M. The birds of Loch-ness-side. *Trans. Inverness Sci. Soc.* 8 1921 pp. 213-227.

437.—McGilp, J. N. The Black-banded Whiteface [*Aphelocephala nigricincta*]. *Emu Melbourne* 21 1921 pp. 49-50.

438.—McGregor, R. C. New or noteworthy Philippine Birds, iii. *Philippine J. Sci. Manila* 18 1921 pp. 75-82 4 pls.

439.—McGregor, R. C. Birds of Antique Province, Panay, Philippine Isds. *Philippine J. Sci.* 18 1921 pp. 537-553 2 pls.

440.—Mackworth-Praed, C. W. A new subspecies of Francolin. *Bul. Bt. Orn. Cl. London* 41 p. 111.

Mackworth-Praed, C. W. *vide* Lowe.

MacPherson, J. *vide* Wolstenholme.

441.—Madden, J. F. The birds of Rugby (1915-20). *Rep. Rugby Sch. Nat. Hist. Soc. for* 1920 1921 pp. 37-50.

442.—Magnan, A. De l'action tourbillonnaire de l'eau sur le corps et la queue des oiseaux plongeurs. *C. R. Acad. Sci. Paris* 172 1921 pp. 236-238.

443.—Magnan, A. De la variation en poids des muscles abaisseurs et releveurs de l'aile suivant l'étendue de la surface alaire chez les oiseaux. *C. R. Acad. Sci. Paris* 172 1921 pp. 1077-1079.

444.—Magnan, A. Le rapport de la surface alaire à la surface caudale chez les oiseaux. *C. R. Acad. Sci. Paris* 172 1921 pp. 1245-1247.

445.—Magrath, H. H. F. Kashmir bird notes. *J. Bombay N. H. Soc.* 28 1921 pp. 276-279.

446.—Mailliard, J. Notes on some specimens in the ornithological collection of the California Academy of Sciences. *Condor Berkeley Cal.* 23 1921 pp. 28-32.

447.—Mailliard, J. Anent Red-winged Blackbirds (*Agelaius*). *Condor Berkeley Cal.* 23 1921 pp. 66-68.

448.—Mailliard, J. W. Notes on the nesting of the Yosemite Fox Sparrow, Calliope Hummingbird and Western Wood Pewee at Lake Tahoe, California. Condor Berkeley Cal. 23 1921 pp. 73-77 1 photo.

449.—Mailliard, J. Notes on fall migrations of Fox Sparrows in California. Condor Berkeley Cal. 23 1921 pp. 178-182.

450.—Mailliard, J. Concerning incubation on the part of the male Belted Kingfisher. Condor Berkeley Cal. 23 1921 pp. 194-195.

451.—Mailliard, J. Notes on the Birds and Mammals of Siskiyou County, California. Proc. Calif. Acad. Sci. 11 1921 pp. 73-94.

452.—Mailliard, J. and Hanna, G. D. New Bird records for North America with notes on the Pribilof Island list. Condor Berkeley Cal. 23 1921 pp. 93-95.

453.—Mallock, A. Colour-production in relation to the coloured feathers of birds. Proc. Zool. Soc. London 1921 pp. 221-228 4 text-fig.

454.—Mann, I. C. On the development of the fissural and associated regions in the eye of the chick with some observations on the mammal. J. Anat. London 55 1921 pp. 113-118 5 text-figs.

455.—Masefield, J. R. B. Aves in Report of Sections. Trans. N. Staff. F. C. Stafford 55 1921 pp. 130-132.

456.—Mathews, G. M. The Birds of Australia 9 pts. 1-5 pp. 1-240 pls. 400-430. London (Witherby) 1921 4to.

457.—Mathews, G. M. Additions and corrections to my list of the Birds of Australia 1913, and Check-List Part I 1920. Austr. Av. Rec. London 4 1921 pp. 135-138.

Mathews, G. M. *vide* Carter.

458.—Mathews, G. M. & Iredale, T. A manual of the Birds of Australia vol. i Casuarii to Colombae, pp. xxiv + 279 10 col. 36 uncol. pls. London (Witherby) 1921 l. 8vo.

459.—Mathews, G. M. & Iredale, T. Notes of interest. Lichtenstein's sale catalogues. Berthould's edition of (N-17041 g) q

Latreille. Encyclopedea Londinensis. Miller's Illustrations. Byth's Catalogue. Fort Pitt, Chatham, Bird Collection. Haldemann's Zoological Contributions. British Bird Names. Another overlooked Bird-list. *Amoropelia* gen. n. Austr. Av. Rec. London 4 1921 pp. 139-164.

460.—Mathews, G. M. & Iredale, T. The nature of the New Zealand Fauna. Emu Melbourne, 20 1921 pp. 210-221.

461.—Mathey-Dupraz, A. Notes ornithologiques de la région du Bosphore. Orn. Beob. Basel 18 1921 pp. 55-58 101-104 137-139 157-158 183-187.

Matsuura, K. *vide* Izuka.

462.—Maxwell, H. Herons and fish. Nature London 107 1921 p. 490.

463.—Meade-Waldo, E. G. B. Nestling Owls. Ibis London 1921 pp. 348-349.

464.—Medlicott, W. S. Some birds rarely breeding in Lincolnshire. Bt. Bds. London 15 1921 pp. 57-58.

465.—[Meiers, F. A.] Report. Ornithological Section. Rep. Rugby Sch. Nat. Hist. Soc. for 1920 1921 pp. 66-76 photos.

466.—Meinertzhagen, A. C. A new race of the Golden Plover. Bul. Bt. Orn. Cl. London 42 1921 p. 6.

Meinertzhagen, A. C. *vide etiam* Jackson, A. C.

467.—Meinertzhagen, R. Notes on some birds seen in South Uist in October and November, 1920. Bt. Bds. London 14 1921 pp. 276-277.

468.—Meinertzhagen, R. *Passer domesticus halfae* subsp. n. Bul. Bt. Orn. Cl. London 41 1921 p. 67.

469.—Meinertzhagen, R. A new race of the Rock Pigeon. Bul. Bt. Orn. Cl. London 42 1921 pp. 6-7.

470.—Meinertzhagen, R. A note on the breeding birds of Crete. Ibis London 1921 pp. 126-139.

471.—Meinertzhagen, R. Some preliminary remarks on the velocity of migratory flight among birds, with special reference to the Palaearctic region. Ibis London 1921 pp. 228-238.

472.—Meinertzhagen, R. Some thoughts on subspecies and evolution. *Ibis* London 1921 pp. 528-537; see also M. D. Haviland pp. 752-754.

473.—Meinertzhagen, R. Notes on some birds from the Near East and from Tropical East Africa. *Ibis* London 1921 pp. 621-671 map.

Meinertzhagen, R. *vide* Jourdain.

474.—Mellerio, A. Observations ornithologiques faites en Vendée. *Rev. Fr. d'Orn.* Paris 13 1921 pp. 78-80.

475.—Mellor, J. E. M. A note on the Ruff, *Machetes pugnax*, a bird found at Wad Medani, Sudan. *Sudan Notes Rec.* Khartoum 4 1921 pp. 195-198.

476.—Menegaux, A. Quelques oiseaux des environs de Dakar et du Sahara. *Rev. Fr. d'Orn.* Paris 13 1921 pp. 59-60.

477.—Menegaux, A. Enquête sur la disparition du Moineau. *Rev. Fr. d'Orn.* Paris 13 1921 pp. 41-42 127-128.

478.—Menzbier, M. und Schnitnikow, W. Der Saxaulhafer des Ilgebietes. Uebersetzt von H. Grote. *J. Ornith.* Leipzig 69 1921 pp. 527-535.

479.—Mercier, A. Deux intéressants contrefacteurs. L'Hypolaïs contre-faisant. Le Rousserolle des marais. *Gerfaut Bruxelles* 11 1921 pp. 19-23.

480.—Merikallio, E. Kolme lintuharvinaisuutta [Bird notes]. *Medd. Soc. Fauna et Fl. Fenn.* Helsingfors 46 1921 pp. 15-20 [German synopsis pp. 217-218].

481.—Millar, A. J. The nesting habits of the Trumpeter Hornbill. *Bycanistes bucinator*. *S. Afr. J. Nat. Hist.* Pretoria 3 1921 pp. 217-219.

482.—Miller, L. A synopsis of California's fossil birds. *Condor Berkeley Cal.* 23 1921 pp. 129-130.

483.—Miller, R. C. The flock behavior of the Coast Bush-tit. *Condor Berkeley Cal.* 23 1921 pp. 121-127 map.

484.—Miller, R. C. The mind of the flock. *Condor Berkeley Cal.* 23 1921 pp. 183-186.

485.—Miller, W. de W. & Griscom, L. Descriptions of proposed new birds from Central America with notes on other little-known forms. *Amer. Mus. Novit.* New York No. 25 1921 pp. 1-13.

486.—Miller, W. de W. & Griscom, L. Notes on *Ortalis vetula* and its allies. *Auk Lancaster Pa.* 38 1921 pp. 44-50 455.

487.—Millet-Horsin, Dr. Souvenirs d'un naturaliste en Afrique Occidentale Française. A. Au Togo. *L'Oiseau Paris* 2 1921 pp. 16-19 50-53 75-80.

488.—Millet-Horsin, Dr. Guide de l'amateur d'oiseaux débarquant sur la terre d'Afrique. *Rev. Fr. d'Orn.* Paris 13 1921 pp. 97-101 134-137 167-171 180-182.

489.—Millet-Horsin, Dr. New subspecies of *Phalacrocorax* and *Halcyon*. *Rev. Fr. d'Orn.* Paris 13 1921 pp. 177-178.

490.—Mills, R. R. The relation of birds to crops. *Agric. Gaz. Canada* Ottawa 8 1921 pp. 69-70.

491.—Milojevic, B. D. Sur les altérations des caractères sexuel secondaires chez un Coq tuberculeux. *C. R. Soc. Biol. Paris* 85 1921 pp. 89-91.

492.—Minoura, T. A study of testis and ovary grafts on the hen's egg and their effects on the embryo. *J. Exp. Zool. Philadelphia* 33 1921 pp. 1-61 1 text-fig. 10 plates

493.—Moriyama, T. Notes on the habits of Richardson's Skua. *Tori Tokyo* 3 No. 11 1921 fig.

494.—Morse, A. P. A Sheld Duck (*Tadorna tadorna* L.) from Essex County, Mass. Franklin's Gull in New England. *Bul. Essex Co. Orn.* Cl. Salem 1921 pp. 68-69 photo.

495.—Mortensen, H. C. C. Maerkede Maager (*Larus*). *Dansk Orn. Tids.* Kjöbenhavn 15 1921 pp. 47-48.

496.—Mouquet, A. Quelques cas de tuberculose aviaire. Typhose aviaire (Autruche et Milan). *Bul. Muséum Paris* 1921 pp. 272-278.

497.—Mousley, H. Further notes and observations on the birds of Hatley, Stanstead County, Quebec, 1919. *Auk Lancaster Pa.* **38** 1921 pp. 51-59.

498.—Mousley, H. Which sex selects the nesting locality. *Auk Lancaster Pa.* **38** 1921 pp. 321-328.

499.—Mullens, W. H. Notes on the Great Auk. *Bt. Bds. London* **15** 1921 pp. 98-108 3 pls.

500.—Mullens, W. H. Henry Wemyss Feilden. *Ibis London* **1921** pp. 726-728.

501.—Munn, P. W. Notes on the birds of Alcudia, Majorca. *Ibis London* **1921** pp. 672-719 map.

502.—Murisier, P. Apropos d'une Poule gynandromorphe. *Bull. Soc. Vaud. Sci. Nat. Lausanne* **54** 1921 pp. 123-130 1 fig.

503.—Murphy, R. C. The sea-coast and islands of Peru IV-VII. *Brooklyn Mus. Quarterly* **8** 1921 pp. 1-28 35-55 91-105 142-155 many photos.

504.—Murphy, R. C. & Harper, F. A review of the Diving Petrels. *Bull. Amer. Mus. N. H. New York* **44** 1921 pp. 495-554 5 pls. 7 text-figs.

505.—Nakao, H. Birds seen in Hiroshima City. *Tori Tokyo* **3** No. 11 1921 figs.

506.—Neumann, L. Der Schwarzschorch—*Ciconia nigra* (L.)—ein uralter Einsiedler in den seenreichen Waldungen des Kreises Dt.-Krone. *Zs. Oologie Neumark* **25** 1920 pp. 49-59.

507.—Newton, E. T. Fossil bird remains collected by Dr. Forsyth Major in Sardinia, Corsica and Greece. *Proc. Zool. Soc. London* **1921** pp. 229-232.

508.—Nice, M. M. Nests of Mourning Doves with their young. *Condor Berkeley Cal.* **23** 1921 pp. 145-147 2 photos.

509.—Nichols, J. T. Estimated numbers of Shore birds. *Auk Lancaster Pa.* **38** 1921 pp. 110-112.

510.—Nicoll, M. J. A new Sandprouse. *Bul. Bt. Orn. Cl. London* **41** 1921 p. 128.

511.—Nicoll, M. J. New forms of *Galerida* and *Charadrius*. *Bul. Bt. Orn. Cl. London* **42** 1921 p. 7.

512.—Nielsen, P. Havørnens (*Haliaetus albicilla*) udbredelse paa island i de sidste 30 aar. *Dansk. Orn. Tids. Kjöbenhavn* **15** 1921 pp. 69-83.

513.—Norton, S. T. W. Notes on the domestic habits of the Spotted-sided Finch (*Stagonopleura guttata*). *Emu Melbourne* **20** 1921 pp. 228-233.

514.—Nubling, E. The Satin Bower Bird: some observations. *Emu Melbourne* **21** 1921 pp. 11-31 pls. 4-8.

515.—Oberholser, H. C. Notes on North America birds X. *Colymbus, Botaurus, Grus, Gallinago*. *Auk Lancaster Pa.* **38** 1921 pp. 79-82.

516.—Oberholser, H. C. The geographic races of *Cyanocitta cristata*. *Auk Lancaster Pa.* **38** 1921 pp. 83-89.

517.—Oberholser, H. C. Sixth annual list of proposed changes in the A.O.U. Check-list of North American birds. *Auk Lancaster Pa.* **38** 1921 pp. 264-269.

518.—Oberholser, H. C. A revision of the races of *Dendroica auduboni*. *Ohio J. Sci. Columbus* **21** 1921 pp. 240-248.

519.—Oberholser, H. C. Mutanda ornithologica X, XI. *Proc. Biol. Soc. Washington D.C.* **34** 1921 pp. 49-50 105-108.

520.—Oberholser, H. C. *Textor* Temminck versus *Alecto* Lesson. *Hyphantornis* Gray becomes *Textor* Temminck. *Proc. Biol. Soc. Washington D.C.* **34** pp. 78-79.

521.—Oberholser, H. C. *Lioptilus* Cabanis preoccupied. A new name for the genus *Curaeus* Sclater. *Anthracoceros* Reichenbach versus *Hydrocissa* Bonaparte. Note on the name *Hypermegethes* Reichenow. Note on the generic names *Textor*, *Alecto* and *Hyphantornis*. *Proc. Biol. Soc. Washington D.C.* **34** 1921 pp. 136-137.

522.—Oberholser, H. C. Notes on Horsfield's "Zoological Researches in Java." *Proc. Biol. Soc. Washington D.C.* **34** 1921 pp. 163-166.

- 523.—Oberholser, H. C. A synopsis of the subspecies of *Electron platyrhynchum* (Leadbeater). Proc. Indiana Acad. Sci. Fort Wayne for 1919 1921 pp. 341-344.
- 524.—Oberholser, H. C. The Anatine genus *Nyroca* and its nearest allies. Proc. Indiana Acad. Sci. Fort Wayne for 1920 1921 pp. 105-113.
- 525.—Oberholser, H. C. Glimpses of desert bird life in the Great Basin. Smithson. Rep. Washington for 1919 1921 pp. 355-366.
- 526.—Oberholser, H. C. & Chapman, F. M. The Migration and Plumages of North American Birds. Bird-Lore Harrisburg Pa. 23 1921 pp. 78-84 192-196 295-299.
- 527.—O'Donoghue, C. H. A preliminary survey of the biota of a sand spit in Lake Winnipeg. Can. Field Nat. Ottawa 35 1921 p. 122-131.
- 528.—Olsen, A. Madagassiske fugle-navne samlet efter leksikoner, reise-skildringer "Antananarivo annual" og egne iagttagelser. Nyt. Mag. Naturv. Kristiania 58 1921 pp. 65-88.
- 529.—Oldham, C. Nesting of the Black-necked Grebe (*Podiceps nigricollis*) in Hertfordshire. Trans. Hertf. Nat. Hist. Soc. St. Albans 17 1921 pp. 211-219.
- 530.—Oordt, G. J. van. Ornithological notes from Spitsbergen and Northern Scandania, 1921. Ardea Leiden 10 1921 pp. 129-170 4 pls. map.
- 531.—Oort, E. D. van. Ornithologia Neerlandica. De Vogels van Nederland. Atlev. 9 10 pls. 's Gravenhage (Nijhoff) 1921 4to.
- 532.—Oort, E. D. van. Het trekken der vogels. Ardea Leiden 10 1921 pp. 75-105.
- 533.—Oort, E. D. van. Resultaten van het ringonderzoek van het Rijks Museum te Leiden. Ardea Leiden 10 1921 pp. 106-110.
- 534.—Orozco, E. Utilidad de los pajoros en agricultura. Mem. Soc. Ant. Alzate Mexico 37 1921 pp. 401-407.
- 535.—Osgood, W. H. The Turkey as a subject for experiment. Amer. Nat. New York 55 1921 pp. 84-88.
- 536.—Osgood, W. H. Convergent habits in Fur Seals and Penguins. Auk Lancaster Pa. 38 1921 pp. 284-285.
- 537.—Osmaston, A. E. A note on the nidification and habits of some birds in British Garhwal. J. Bombay N. H. Soc. 28 1921 pp. 140-160 map 6 photos.
- 538.—Osmaston, B. B. The White-spotted Fantail Flycatcher (*Rhipidura pectoralis*). The Crested Swift (*Macropygia coronata*). J. Bombay N. H. Soc. 28 1921 pp. 282-284 2 figs.
- 539.—Osmaston, B. B. Further notes on Indian Nightjars. J. Bombay N. H. Soc. 27 1921 pp. 948-949.
- 540.—Owen, J. H. Some breeding-habits of the Sparrow-Hawk. 8. Laying and incubation—Pt. iii. Brit. Bds. London 15 1921 pp. 74-77. photo.
- 541.—Owen, J. H. A note on the Red-backed Shrike. Bt. Bds. London 15 1921 pp. 109-110 photo.
- 542.—Owen, J. H. The Sparrow-hawk. Nature London 106 1921 pp. 695-697 4 figs.
- Page, F. H. *vide* Hankin.
- 543.—Palmer, R. H. A Murre (*Uria troille californica*) tragedy. Condor Berkeley Cal. 23 1921 p. 135 photo.
- 544.—Palmer, T. S. In Memoriam: William Dutcher, 1846-1920. Auk Lancaster Pa. 38 1921 pp. 501-513 portr.
- 545.—Palmgren, A. Embryological and morphological studies on the mid-brain and cerebellum of Vertebrates. Acta Zool. Stockholm 2 1921 pp. 1-94 birds 18-22 56-65 119 text-figs.
- 546.—Palmgren, R. *Gyps fulvus* in Finland. Medd. Soc. Faun. et Fl. Fenn. 47 1921 pp. 16 217.
- Palmgren, R. *vide* Lönnberg.
- 547.—Paris, P. Faune de France. 2. Oiseaux pp. iv + 473 490 figs. Paris (Lechevalier) 1921 8vo.
- 548.—Parker, M. L. The relation of song to the nesting of birds. Bt. Bds. London 14 1921 p. 283; also J. P. Burkit *ibid.* 15 p. 23.

549.—Pearl, R. & Schoppe, W. F. Studies in the physiology of reproduction in the domestic fowl. xviii. Further observations on the anatomical basis of fecundity. J. Exper. Zool. Philadelphia **34** 1921 pp. 102-118 2 text-figs.

550.—Pearson, T. G. Notes on the bird-life of south-eastern Texas. Auk Lancaster Pa. **38** 1921 pp. 513-523 photos.

Pease, M. S. *vide* Punnett.

Peck, M. E. *vide* Ritter.

551.—Pellinkhof, J. H. Vogels van Meppel en omgeving. Ardea Leiden **10** 1921 pp. 111-112.

Penard, T. E. *vide* Bangs.

552.—Peters, J. L. A review of the Grackles of the genus *Holquiscalus*. Auk Lancaster Pa. **38** 1921 pp. 435-453.

553.—Petronievics, P. Ueber das Becken, den Schultergürtel und einige andere Teile der londoner *Archaeopteryx* pp. 1-31 2 pls. Genf. (*i.e.* Geneva) [Georg] 1921 l. 8vo.

554.—Peyron, A. Sur la différenciation et l'évolution néoplastique des fibres musculaires striées dans le sacrome infectieux des oiseaux. C. R. Soc. Biol. Paris **84** 19-21 pp. 19-22 1 fig.

555.—Peyron, A. Developpement de métastases ovariennes rhabdomyomatenses dans l'évolution expérimentale de la tumeur infectieuse des oiseaux. C. R. Soc. Biol. Paris **85** 1921 pp. 655-658 3 figs.

556.—Peyron, A. et. Lieure, C. Régression et phagocytose sur fibres musculaires striées dans la tumeur infectieuse des oiseaux. C. R. Soc. Biol. Paris **84** 1921 pp. 656-659 3 figs.

557.—Phillips, J. C. The status of certain ducks at Wenham Lake. Bul. Essex Co. Orn. Cl. Salem 1921, pp. 19-33.

558.—Phillips, J. C. A further report of species crosses in birds. Genetics Baltimore **6** 1921 pp. 366-383 figs. 1-5.

559.—Pierce, W. M. Nesting of the Stephens Fox Sparrow. Condor Berkeley Cal. **23** 1921 pp. 80-85 3 photos.

560.—Pitman, C. R. S. Oological notes on some of the breeding birds of Palestine. Ool. Rec. London **1** 1921 pp. 15-38 73-91.

561.—Pohl, R. Aus meinem Tagebuch. Orn. Monatsb. Berlin **29** 1921 pp. 101-102.

562.—Pohlman, A. G. The position and functional interpretation of the elastic ligaments in the middle-ear region of *Gallus*. J. Morph. Philadelphia **35** 1921 pp. 229-262 12 figs.

563.—Pohlman, A. G. Have birds an acute sense of sound location? Science New York **53** 1921 pp. 439-440.

564.—Poll, H. Das Zahlenverhältnis der Geschlechter bei Vogel-mischlingen. J. Ornith. Leipzig **69** 1921 pp. 512-526 1 col. pl.

565.—Ponebsek, J. Naše ujeđe (Nos oiseaux de proie). Carniola. Ljubljani (*i.e.* Laibach) **6** 1915 pp. 31 100-116 172-186 **8** 1917 pp. 57-70 203-228; **9** 1918 67-84 158-176 many figs.

566.—Poole, E. L. Impressions of bird-life in France. Auk Lancaster Pa. **38** 1921 pp. 329-340 1 pl.

567.—Portal, M. Chukor Partridges from Crete (breeding in captivity). Avicult. Mag. London **12** 1921 pp. 118-121.

568.—Portier, P. et Rorthays, R. de. Disparition spontanée de certains caractères sexuels secondaires chez un Coq. Étude histologique du testicule. C. R. Soc. Biol. Paris **85** 1921 ppl 444-446.

569.—Prater, S. H. The Arabian Ostrich. J. Bombay N. H. Soc. **27** 1921 pp. 602-605.

570.—Punnett, R. C. and Bailey, P. G. Genetic studies in poultry. III. Hen-feathered cocks. Journ. Genetics Cambridge **11** 1921 pp. 37-57 pls. vii-xi 2 text-figs.

571.—Punnett, R. C. and Pease, M. S. Genetic studies in poultry. IV. On the barred plumage of certain breeds. Journ. Genetics Cambridge **11** 1921 pp. 235-240 2 text-figs.

572.—Quiros, J. L. B. de. Excursion ornitológica a la Janda. Bol. Soc. Esp. Hist. Nat. Madrid **20** 1920 pp. 236-248.

573.—Ralfe, P. G. Manx ornithological notes, 1920. Brit. Bds. London 15 1921 pp. 39-40.

574.—Rasmussen, C. A. Om forekomsten af Markpiberen (*Anthus campestris*) vest for Iseljorden. Dansk Orn. Tids. Kjøbenhavn 15 1920 pp. 25-36 map.

575.—Raspail, X. Sur le transport par les Butéoniens de leurs jeunes d'un nid dans un autre. Rev. Fr. d'Orn. Paris 13 1921 pp. 93-94; also Coopman, L. and Guérin, M. C. pp. 147-149.

576.—Rattigan, G. E. Nesting notes on the Yellow-billed Cardinal (*Paroaria capitata*). Bird Notes Ashbourne (3) 4 1921 pp. 164-168.

577.—Raw, W. Field notes on the birds of Lower Egypt. With contributions by Col. R. Sparrow, C.M.G., etc., and the Rev. F. C. R. Jourdain. Ibis London 1921 pp. 238-264 359-387 569.

Reichenberger, E. M. B. *vide* Cherrie.

578.—Reichenow, A. Über *Buteo vulpinus* Licht. J. Ornith. Leipzig 69 1921 pp. 38-40; also Stresemann, E. pp. 215-217 and Reichenow, A. pp. 217-218.

579.—Reichenow, A. Neue Vogelarten aus Kamerun. J. Ornith. Leipzig 69 1921 pp. 46-49.

580.—Reichenow, A. Die spitzhaubigen Turakos. J. Ornith. Leipzig 69 1921 pp. 211-215.

581.—Reichenow, A. Neue Arten-*Arboricola*, *Turtur*, *Alseonax*, *Apalis*. J. Ornith. Leipzig 69 1921 pp. 263-266.

582.—Reichenow, A. Eine neue Drossling (*Creteropus*). J. Ornith. Leipzig 69 1921 p. 461.

583.—Reichling, H. Der Kleine Krabbentancher, *Alle alle* L., in Westfalen, sein Vorkommen im Innern von Deutschland und an den deutschen Küsten. J. Ornith. Leipzig 69 1921 pp. 139-147.

584.—Reichling, H. Beiträge zur Vogelfauna des Münsterlandes. Jahresber. Prov. Ver. Wiss. Munster 44 1916 pp. 154-168 45 1917 pp. 83-98.

585.—Reichling, H. Eine interessante albinotische Varietät von *Budytes flavus*. Jahresber. Prov. Ver. Wiss. Munster 47-48 1920 pp. 19-21.

586.—Renshaw, G. An historic egg [*Didunculus strigirostris*]. Ool. Rec. London 1 1921 pp. 39-40.

587.—Reventlow, C. E. Storkene paa Brahetrolleborg. Dansk. Orn. Tids. Kjøbenhavn. 15 1921 pp. 87-92 2 photos.

588.—Reyne, A. Over het voorkomen van den Rotshaan (*Rupicola crocea* L.) in Suriname. Ardea Leiden 10 1921 pp. 25-26.

589.—Ribeiro, A. de M. Revisão dos Psittacideos brasileiros. Rev. Mus. Paulista São Paulo 12 1920 pt. 2 pp. 1-82 9 pls.

590.—Riddle, O. General effects of increased and decreased pressures of oxygen on dove embryos. Proc. Soc. Exp. Biol. Med. New York 18 1921 pp. 102-5.

591.—Riddle, O. Identical twins in pigeons arise from ova of markedly aberrant size. Proc. Soc. Exp. Biol. Med. New York 19 1921 pp. 12-14.

592.—Riley, J. H. Note on the name *Gazzola* Bonaparte [*Nesocorax* gen. n.]. Auk Lancaster Pa. 38 1921 p. 458.

593.—Riley, J. H. Five new genera of Birds. Proc. Biol. Soc. Washington D.C. 34 1921 pp. 51-54 [*Columbidae*, *Bucerotidae*, *Meliphagidae*].

594.—Riley, J. H. Four new birds from Celebes. Proc. Biol. Soc. Washington D.C. 34 pp. 55-58 [*Scelopax*, *Dendrobiastes*, *Myzomela*, *Lamprocorax*].

Rintoul, L. J. *vide* Baxter.

595.—Riquier, G. C. Ancora sullo sviluppo del sistema nervoso simpatico dei rettili e degli uccelli. Riv. patol. nerv. ment. Firenze 25 1920 pp. 38-46 3 figs.

596.—Ritson, C. F. A. Notes on some of the rarer British Birds which breed in Denmark. Ool. Rec. London 1 1921 pp. 95-101.

597.—Ritter, W. E. Acorn-storing by the California Woodpecker. Condor Berkeley Cal. 23 1921 pp. 1-14 4 figs.; also Henshaw, H. W. pp. 109-118 1 photo.; also Peck, M. E. p. 131.

598.—Riviere, R. B. The autumn movement of Gulls on the Norfolk coast. Trans. Norfolk Nat. Soc. 11 1921 pp. 104-127 map.

599.—Robinson, H. C. On some rare birds from the Indo-Malayan sub-region. *Bul. Bt. Orn. Cl. London* 41 1921 pp. 64-66.

600.—Robinson, H. C. A new race of *Cyornis*. *Bul. Bt. Orn. Cl. London* 42 1921 pp. 12-13.

601.—Robinson, H. C. The status of *Picus rubricollaris* Baker. *Ibis London* 1921 pp. 349-350.

602.—Robinson, H. C. and Kloss, C. B. Nine new Oriental birds. [*Treron*, *Macropygia*, *Zanclostomus* *Brachylophus*, *Eupetes*, *Drymocataphus*, *Macrococcyz*, *Horizilla*, *Prionochilus*]. *J. Fed. Malay Mus. Kuala Lumpur* 10 1921 pp. 203-206.

603.—Robinson, H. C. and Kloss, C. B. Some birds from Pulo Condore. *J. Nat. Hist. Soc. Siam Bangkok* 4 1921 pp. 85-91.

604.—Robinson, H. C. and Kloss, C. B. The Birds of south-west and peninsular Siam; being an account of the birds of Siam from the head of the Gulf of Siam to the Malayan border, with references to the recorded occurrences and a key to the individual species. *J. Nat. Hist. Soc. Siam Bangkok* 5 1921 pp. 1-87 map.

Robinson, H. W. *vide* Thomson.

605.—Rochon-Duvigneaud, A. Le vision et l'œil des Oiseaux. *Bull. Biol. Fr. et Belg. Paris* 54 1921 (109-167).

606.—Rochon-Duvigneaud, A. Les grands Rapaces des gorges du Tarn. *Rev. Fr. d'Orn. Paris* 13 1921 pp. 21-25 33-37 53-56.

607.—Rogers, C. H. Piping Plover breeding in New Jersey. *Auk Lancaster Pa.* 38 1921 pp. 600-601.

Rorthays, R. *vide* Portier.

Rosenberg, E. *vide* Blomqvist.

608.—Rothschild, Lord. On a new subspecies of Snipe from New Zealand. *Bul. Bt. Orn. Cl. London* 41 1921 p. 63.

609.—Rothschild, Lord. New race of *Thinocorus* described. *Bul. Bt. Orn. Cl. London* 41 1921 p. 111.

610.—Rothschild, Lord. A new species of *Paradisea* and note on *P. apoda granti*. *Bul. Bt. Orn. Cl. London* 41 1921 p. 127.

611.—Rothschild, Lord. A new species of *Paradisea*. *Bul. Bt. Orn. Cl. London* 41 1921 pp. 138-139.

612.—Rothschild, Lord. On the correct name of D'Aubenton's "Manucode à Bouquets." *Ibis London* 1921 p. 465.

613.—Rothschild, Lord. On a collection of birds from West-Central and North-Western Yunnan. *Nov. Zool. Tring* 28 1921 pp. 14-67.

614.—Rothschild, Lord. On some birds from the Weyland Mountains, Dutch New Guinea. *Nov. Zool. Tring* 28 1921 pp. 280-294.

615.—Rothschild, Lord and Hartert, E. *Turdus joiceyi* sp. n. *Bul. B. O. C.* 41 1921 pp. 74-75.

616.—Rowan, W. Observations on the breeding habits of the Merlin. *Brit. Bds. London* 15 1921 pp. 122-129 3 photos.

617.—Rowan, W. Some notes on the Belted Kingfisher. *Canad. Field Nat. Ottawa* 25 1921 pp. 30-32.

618.—Rowswell, B. T. Report on the ornithological section 1920. *Rep. Trans. Guernsey Soc. Nat. Sci. for* 1920 1921 pp. 238-240.

619.—Rüdiger, W. Ornithologische Beobachtungen in den Gouvernements Kowno und Kurland. *Arch. Naturg. Berlin* 82 Abt. A. 3 heft. 1915 pp. 12-27.

620.—Rüdiger, W. Beobachtungen an Schreiadlern. *Zs. Oöologie Neumark* 24 1920 pp. 20-25.

621.—Rüdiger, W. and others. Hermann Hocke. *Zs. Oöologie Neumark* 25 1920 pp. 1-8 portr.

Rüdiger, W. *vide* Zimmermann.

622.—Russell, J. Birds of Barunch Plains and district [Victoria]. *Emu Melbourne* 21 1921 pp. 137-142.

623.—Ruttledge, R. F. Ornithological notes from Mayo and Galway. *Irish Nat. Dublin* 30 1921 pp. 46-49.

624.—S—, J. De Vogels bij Horne-ros. *Jaarb. Cl. Ned. Vogelk. Delft* No. 11 1921 pp. 20-31.

625.—Sabin, F. R. Studies on the origin of blood vessels and of red blood corpuscles as seen in the living blastoderm of chicks during the second day of incubation. *Contr. Embryology* 9 No. 36 pp. 215–262 6 pls. 1 text-fig. Washington (Carnegie Inst.) 1920 4to.

626.—Sajovic, G. Ornitologiën zapiski za kranjsko v letih 1914 do 1916. [Ornithological notes for Carniola from 1914 to 1916 and 1917–18.] Carniola Ljubljani (i.e., Lenbach) 8 1917 pp. 70–93, 9 1918 p. 177–187 figs.

627.—Salvadori, T. ed Festa, E. Missione zoologica del Dott. E. Festa i Cirenaica. Uccelli. Boll. Mus. zool. anat. comp. Torino 36 No. 738 pp. 1–5.

628.—Saunders, A. A. The song periods of individual birds. *Auk Lancaster Pa.* 38 1921 pp. 283–284.

629.—Saunders, A. A. A distributional list of the Birds of Montana. *Pacific Coast Avifauna* No. 14 of the Cooper Ornithological Club pp. 1–194 map and 35 figs. Berkeley Cal. 1921 8vo.

630.—Schaanning, H. T. L. Bjerkreim-Orren. *Tyrurus tetrax bjerkreimensis* subsp. n. pp. 1–2 8 pls. 3 text-fig. 1 map. [No date or place of publication.]

631.—Schaanning, H. T. L. Tabelarisk Oversikt av Norges Fugler. *Norsk. Orn. Tids. Stavanger* No. 1 1921 pp. 9–24 map.

632.—Schaanning, H. T. L. Ringfugler. En oversikt av det internasjonale ringmerkningsarbeide sant Norges andel i samme. *Norsk. Orn. Tids. Stavanger* No. 1 1921 pp. 29–44.

633.—Schaanning, H. T. L. Norske trekkfugl-undersøkelser igangsatt ved Stavanger Museum i mars 1920. *Norsk. Orn. Tids. Stavanger* No. 1 1921 pp. 50–73.

634.—Schalow, H. Über das Vorkommen von *Erismatura leucocephala* Scop.) in Thüringen. *Verhandl. Orn. Ges. Bay. München* 15 1921 pp. 43–44.

635.—Schenk, J. Vogelzugsdaten aus Ungarn. iii. Jahrgang 1920. *Aquila Budapest* 27 1921 pp. 39–55.

636.—Schenk, J. Des Vorkommen der Eiderente in Ungarn. *Aquila Budapest* 27 1921 pp. 266–269.

637.—Schiöler, E. L. A short description of the sequence of plumages in some Palaearctic surface-feeding Ducks. *Brit. Bds. London* 15 1921 pp. 130–138.

638.—Schiöler, E. L. Sushkins Gaas, *Anser neglectus*, Sush. truffen i Danmark. Bartrams Klire, *Bartramia longicauda* (Becht.) ny for Danmark. *Dansk. Orn. Tids.* 15 1921 pp. 37–47 9 text-figs.

639.—Schlegel, R. Beobachtungen und Untersuchungen an sächsischen Schwanzmeisen, *Aegithalos caudatus europaeus* (Herm.). *Verhandl. Orn. Ges. Bay. München* 15 1921 p. 51–57.

640.—Schlegel, R. Wie man falsche Kuckuckseier als solche leicht bestimmen kann. *Zs. Oologie Neumark* 25 1920 pp. 8–12.

641.—Schlegel, R. Bemerkungen über die Eier einiger zentralasiatischer Arten. *Zs. Oologie Neumark* 25 1920 pp. 29–35.

642.—Schlott, M. Der Merlin (*Falco aesalon*) als Brutvogel im Riesengebirge. *Ornith. Monatsb. Berlin* 29 1921 pp. 97–98.

643.—Schmidt, R. Ueber Eier mit blauer Ringbildung. *Zs. Oologie Neumark* 25 1920 pp. 69–73.

644.—Schmidt, W. J. Über die gelbe Färbung der Mundhöhle junger Vögel. *Verhandl. nathist. Ver. Bonn.* 75 1919 pp. 169–188 pl. iv.

Schmitt, C. vide Stadler.

645.—Schmitz, P. E. Vom See Genesareth. *Ornith. Monatsb. Berlin* 29 1921 pp. 12–14.

646.—Schneider, K. M. *Fulmarus glacialis* in Sachsen. *J. Ornith. Leipzig* 69 1921 pp. 41–45.

647.—Schneider, K. M. *Urinator arcticus* in Thüringen. *Ornith. Monatsber. Berlin* 29 1921 pp. 52–53.

648.—Schneider, K. M. Eine Lichterscheinung an fliegenden Vögeln. *Orn. Monatsb.* 29 1921 pp. 98–101.

Schnitnikow, W. vide Menzbier.

649.—Schnurre, O. Die deutsche Vogelfauna in ihren Beziehungen zu den Siedlungen des Menschen. *Ber. Senckenb. Ges. Frankfurt-a. M.* 51 1921 pp. 13–17.

650.—Scholey, G. J. A remarkable Cuckoo coincidence. *Ool. Rec. London* 1 1921 pp. 63-70.

Schoppe, W. F. *vide* Pearl.

651.—Schorger, A. W. An attack on Live Stock by Magpies (*Pica p. hudsonia*). *Auk Lancaster Pa.* 38 1921 pp. 276-277; also Stephens pp. 458-459.

652.—Schumacher, S. Der Burzel-docht. *Anat. Anz. Jena* 52 1919 pp. 291-301 10 text-figs.

653.—Schumacher, S. Darmzotten und Darmdrüsen bei den Walddhühnern. *Anat. Anz. Jena* 54 1921 pp. 272-381 4 figs.

654.—Schuster, L. Beiträge zur Ornithologie Nordostfrankreichs. *J. Ornith. Leipzig* 69 1921 pp. 153-200 535-570.

655.—Schuster, L. Über Zuruhegehen und Abzug des Turmseglers (*Micropus apus*). *Ornith. Monatsb. Berlin* 29 1921 pp. 30-31.

656.—Schut, L. W. Quelques facteurs ayant de l'importance dans l'acquisition d'habitudes par les oiseaux. *Arch. Néer. Physiol. Sci. Soc. Holl. Harlem* 5 1921 pp. 244-274 4 figs.

657.—Schwan, A. Vogelgesang und Wetter, physikalisch - biologisch untersucht. Vorläufige Mitteilung. *Arch. ges. Physiol. Berlin* 180 1920 pp. 341-347.

658.—Schwan, A. Über die Abhängigkeit des Vogelgesanges von meteorologischen Faktoren, untersucht auf Grund physikalischer Methoden. *Verhandl. Orn. Ges. Bay. München* 15 1921 pp. 9-42 1 pl.

659.—Sclater, W. L. Note on the races of the Two-banded Courser and on the Red-necked Francolin. *Bul. Bt. Orn. Cl. London* 41 1921 pp. 132-135.

660.—Sclater, W. L. Notes on African birds. *Bul. Bt. Orn. Cl. London* 42 1921 pp. 22-25.

661.—[Sclater, W. L.] Obituary: George Wyman Bury. *Ibis London* 1921 pp. 151-152.

662.—[Sclater, W. L.] Obituaries: William Warde Fowler, Alphonse Dubois, Max Fürbringer. *Ibis London* 1921 pp. 729-732.

Sclater, W. L. *vide* Hartert.

663.—Sehlbach, F. Über Zunahme einiger Singvogelarten im Wesertale. *Orn. Monats. Berlin* 29 1921 pp. 102-103.

664.—Seilkopf, H. Ornithologische Beobachtungen aus der Mark Brandenburg. *Ornith. Monatsbr. Berlin* 29 1921 pp. 60-63.

665.—Selous, E. Sex habits of the Great Crested Grebe. *Naturalist London* 1921 pp. 173-176 197-200 301-305.

666.—Serié, P. Sobre la alimentacion de la Perdiz comun (*Nothura maculosa*). *Hornero Buenos Aires* 2 1921 pp. 230-232.

667.—Seth-Smith, D. L'élevage en captivité de l'Hemipode de Tank. (*Turnix tanki*) et de l'Hemipode varié (*Turnix varia*). *L'Oiseau Paris* 2 1921 pp. 133-138 1 pl. and text-figs and pp. 181-188 1 pl. and text-figs.

668.—Seton, E. T. Why do Birds bathe? *Bird-Lore Harrisburg Pa.* 23 1921 pp. 124-137 photos.

669.—Shaver, N. E. A nest study of the Maryland Yellow-throat. *Univ. Iowa Studies Iowa City No.* 23 1918 pp. 3-12 4 pls.

670.—Sheals, A. Rare birds in Ulster. *Northern Whig Newspaper Jan.* 1922 pp. 1-7.

671.—Sherborn, C. D. and Iredale, T. J. F. Miller's Icones. *Ibis London* 1921 pp. 302-309.

672.—Shikinami, J. Über die Entwicklung der Milzanlage bei den Vögeln. *Arb. Anat. Inst. Univ. Sendai Heft* 5 1920 pp. 1-25 8 plates 3 text-figs.

673.—Simon, E. Histoire naturelle des Trochilidae (Synopsis et Catalogue). pp vi + 416 Paris (Mulo) 1921 l. 8vo.

674.—Simpson, S. Pituitary feeding and egg production in the domestic fowl. *Proc. Soc. Exp. Biol. Med. New York* 17 20 pp. 87-88.

675.—Slonaker, J. R. The development of the eye and its accessory parts in the English Sparrow (*Passer domesticus*). *J. Morph. Philadelphia* 35 1921 pp. 263-322 10 text-figs. 17 pls.

676.—Shufeldt, R. W. Published figures and plates of the extinct Passenger Pigeon. *Sci. Monthly* 1921 pp. 457–480 15 figs.

677.—Skinner, M. P. Notes on the Rocky Mountain Jay in the Yellowstone National Park. *Condor Berkeley Cal.* 23 1921 pp. 147–151.

678.—Smith, J. N. D. Notes on the Little Tern and young. *Brit. Bds.* London 15 1921 pp. 50–56 2 photos.

679.—Smith, L. W. Records of interest from Meriden, Connecticut. *Auk Lancaster Pa.* 38 1921 pp. 465–467.

680.—Smith, T. L. A Ringed Plover's "nests." *Brit. Bds.* London 15 1921 pp. 26–32 5 photos.

681.—Smith, W. P. Some unusual bird records for northern Vermont. *Auk Lancaster Pa.* 38 1921 pp. 467–468.

Snouckaert van Schauburg, R. C. E. *Baron vide* Heurn.

682.—Someren, V. J. L. van. Sixteen new subspecies of African birds described. *Bul. Bt. Orn. Cl. London* 41 1921 pp. 102–104.

683.—Someren, V. G. L. van. Thirteen new African birds. *Bul. Bt. Orn. Cl. London* 41 1921 pp. 112–115.

684.—Someren, V. G. L. van. New birds from eastern Africa. *Bul. Bt. Orn. Cl. London* 41 1921 pp. 121–126.

685.—Someren, V. G. L. van. On a collection of birds from Turkanaland. *J. E. Afr. and Uganda N. H. Soc. Nairobi No.* 16 1921 pp. 3–38.

686.—Soper, J. D. Gleanings from the Canadian West. Part i. Avian fauna of Islay, Alberta. *Canad. Field Nat.* 35 1921 pp. 50–54.

Sparrow, R. *vide* Raw.

687.—Speck, F. G. Bird-lore of the Northern Indians. Reprint from vol. vii *Public Lectures by Univ. Pennsylvania faculty 1919–1920 Philadelphia* (Publ. by the University) 1921.

688.—Stadler, H. Der Schwirrer im Gesang von Buchen- und Berglaubvogel (*Phylloscopus sibilatrix* und *bonelli*). *Ornith. Monatsb. Berlin* 29 1921 pp. 28–30.

689.—Stadler, H. Todesursache bei einem verunglückten Vogel. *Ornith. Monatsb. Berlin* 29 1921 pp. 33–34.

690.—Stadler, C. u. Schmitt, C. Die Formen der Vogelrufe. *Arch. Naturg. Berlin* 87 Abt. A Heft 4 1921 pp. 276–303.

Staub, A. *vide* Jouan.

691.—Steinach, E. Künstliche Zwitterdrüsen bei Säugern und Vögeln. *Anz. Akad. Wiss. Wien* 56 1919 pp. 135–138.

692.—Stenhouse, J. H. Bird notes from southern Spain. *Ibis London* 1921 pp. 573–594.

693.—Stenhouse, J. H. Lapland Blue-throat at Fair Isle. *Scot. Nat. Edinburgh* 1921 p. 76.

Stenhouse, J. H. *vide* Clarke.

694.—Stephens, F. Eclipse plumage of Cinnamon Teal. *Condor Berkeley Cal.* 23 1921 p. 194.

695.—Stephens, T. C. A study of a Red-eyed Vireo's nest which contained a Cowbird's egg. *Bul. Lab. Nat. Hist. Univ. Iowa City No.* 11 1917 pp. 25–37.

696.—Stephens, T. C. Bird records of the past two winters, 1918–1920 in the Upper Missouri Valley. *Proc. Iowa Acad. Sci. Des Moines* 27 [1921] pp. 395–407.

697.—Stolz, J. W. Ornithologische Nachlese aus der Oberlausitz. *Abh. natf. Ges. Görlitz* 28 1917 pp. 163–250 2 maps.

698.—Stone, W. King Eider (*Somateria spectabilis*) in Pennsylvania. *Auk Lancaster Pa.* 38 1921 p. 270.

Stone, W. *vide* Arthur.

699.—Stoner, D. Bird records for the season 1919–1920 in the vicinity of Iowa City. *Proc. Iowa Acad. Sci. Des Moines* 27 [1921] pp. 379–384.

700.—Stoner, D. The nesting habits of the Hermit Thrush, *Hylocichla guttata pallasi* (Cab.) in northern Michigan. *Univ. Iowa Studies Iowa City No.* 38 1920 pp. 1–21.

701.—Storer, T. I. American Crossbill eating Elm Aphis. *Condor Berkeley Cal.* 23 1921 p. 98.

702.—Storer, T. I. The northward range of the Allen Humming bird. Condor Berkeley Cal. 23 1921 pp. 160–162.

Storer, T. I. *vide* Grinnell.

703.—Stresemann, E. Zur Nomenklatur einiger Vögel der orientalischen Region. Anz. Orn. Ges. Bayern No. 4 1921 pp. 23–25.

704.—Stresemann, E. New forms of *Munia*, *Sericornis*, *Xanthotis*, *Melipotus*, *Peltops*, *Pachycephala*, *Pinarolestes*, *Cacomantis*, *Collocalia*, *Hemiprocne* described. Anz. Orn. Ges. Bay. München No. 5 1921 pp. 33–38.

705.—Stresemann, E. Die Spechte der Insel Sumatra. Eine monographische Studie. Arch. Naturg. Berlin 87 Abt. A Heft 7 1921 pp. 64–120.

706.—Stresemann, E. Die Mauser der Singvögel im Dienste der Systematik. J. Orn. Leipzig 69 1921 pp. 102–106.

707.—Stresemann, E. Zur Kenntnis eines seltenen sumatranischen Spechtes. Jaarb. Cl. Ned. Vogelk. Delft No. 11 1921 pp. 32–33.

708.—Stresemann, E. Zur Hand-schwingemauser der Alcedinidae. Ornith. Monatsber. Berlin 29 1921 pp. 37–40.

Stresemann, E. *vide* Reichenow.

Stubbs, A. P. *vide* Lawson.

709.—Stubbs, F. J. Note on a possible Lancashire example of the Gold-crested Kinglet (*Regulus satrapa*). Lanes. and Cheshire Nat. 14 1921 pp. 126–128.

710.—Swaen, A. E. H. Bijzonderheden betreffende de Gierzwaluw. [*Apus apus* (L.)]. Ardea Leiden 10 1921 pp. 10–24.

711.—Swann, H. K. A synopsis of the Accipitres (Diurnal Birds of Prey). Pt. i (*Vultur* to *Accipiter*). 2nd ed. pp. 1–63 London (Wheldon & Wesley) Sept. 1921 8vo.

712.—Swann, H. K. Notes on a collection of Accipitres from the Merida district, W. Venezuela. Auk Lancaster Pa. 38 1921 pp. 357–364.

713.—Swann, H. K. A birds' nesting trip to Andalusia. Ool. Rec. London 1 1921 pp. 49–63.

714.—Swann, H. K. Birds seen in Andalusia during spring, 1920. Trans. London Nat. Hist. Soc. for 1920 1921 pp. 14–19.

715.—Swarth, H. S. The Sitkan race of the Dusky Grouse. Condor Berkeley Cal. 23 1921 pp. 59–60.

716.—Sydänheimo, M. Ornitologiaa havaintoja Tuusulassa [Orn. Beobach. aus Tuusula]. Medd. Soc. Fauna et Fl. Fenn. Helsingfors 45 1920 pp. 194–203 (German synop. p. 293).

717.—Symons, R. E. The Black Stork (*Ciconia nigra*). Bull. S. Afr. Biol. Soc. No. 1 1918 pp. 8–10.

718.—Symons, R. E. The Blue or Common Heron. Bull. S. Afr. Biol. Soc. No. 2 1918 pp. 17–20.

719.—Szemere, L. Über den Schrei-adler. *Aquila pomarina* Brehm. Aquila Budapest 27 1921 pp. 55–80 pl. 1.

720.—Szilagyi, J. B. Beschreibung des grossen Sarret-Sumpfes im Komitate Bihar aus dem Jahre 1827. Aquila Budapest 27 1921 pp. 60–70 map.

721.—Szymanski, J. S. Ein Versuch über die Disposition der Tiere zum Erfassen der Ähnlichkeitsbeziehungen. [Experiments on Fowls.] Zs. angew. Psychol. Leipzig 17 1920 pp. 134–143 2 text-figs.

722.—Taka-Tsukasa, N. Quail breeding in Japan. Avicult. Mag. London 12 1921 pp. 24–28.

723.—Täning, A. V. Sortternen (*Hydrochelidon nigra* L.) i Denmark. Dansk. Orn. Tids. Kjöbenhavn 15 1921 pp. 49–66 1 photo.

724.—Taverner, P. A. The Evening Grosbeak in Canada. Canad. Field-Nat. 35 1921 pp. 41–45.

725.—Tejera, E. Les Aigrettes au Vénézuëla. L'Oiseau Paris 2 1921 pp. 152–158.

726.—Thanner, R. v. Abnorm gefärbte Vögel auf den Kanaren und Einfluss eines regenlosen Winters auf das Brutgeschäft einzelner Arten. Zs. Oologie Neumark 25 1920 pp. 43–46.

727.—Thayer, J. E. and Bangs, O. *Motacilla lugens* Kittl. in Alaska. Auk Lancaster Pa. 38 1921 p. 460.

728.—Thienemann, J. xix. Jahresbericht (1919) der Vogelwarte Rossitten der Deutschen Ornithologischen Gesellschaft. J. Ornith. Leipzig **69** 1921 pp. 1–38.

729.—Thienemann, J. Vogelwarte Rossitten. Orn. Monatsb. Berlin **29** 1921 pp. 21–23 93–94.

730.—Thompson, W. R. Notes on the birds of Alderney. Ibis London **1921** pp. 415–453; also H. B. Alexander pp. 751–752.

731.—Thomson, A. L. A critical note on the value of bird-marking. Brit. Bds. London **15** 1921 pp. 146–150.

732.—Thomson, A. L. Results of a study of Bird Migration by the marking method. Ibis London **1921** pp. 466–527; also H. W. Robinson pp. 750–751.

733.—Ticehurst, C. B. Remarks on some Indian birds. Bul. Bt. Orn. Cl. London **41** 1921 pp. 79–82.

734.—Ticehurst, C. B. On the plumage development of *Pterocles senegalensis*. Bul. Bt. Orn. Cl. London **42** 1921 pp. 9–11.

735.—Ticehurst, C. B.; Buxton, P. A. and Cheesman, R. E. The Birds of Mesopotamia. J. Bombay N. H. Soc. **28** 1921 pp. 210–250 4 photos.

736.—Ticehurst, N. F. A contribution to Swan history. Bt. Bds. London **14** 1921 pp. 176–179.

737.—Ticehurst, N. F. On former breeding places of the Oystercatcher and Black-headed Gull in East Sussex. Brit. Bds. London **15** 1921 pp. 6–9.

738.—Ticehurst, N. F. Some local Heron History. Hastings and E. Sussex Nat. **3** 1920 pp. 113–118 148–153.

739.—Tischler, F. Zur Vogelwelt des Kinkeimer Sees. Ornith. Monatschr. Magdeburg **46** 1921 pp. 129–141.

740.—Todd, W. E. C. Studies in the Tyrannidae. i. A revision of the genus *Pipromorpha*. Proc. Biol. Soc. Washington D. C. **34** 1921 pp. 173–192.

741.—Townsend, C. W. The Terns of our coast: a retrospect and a prospect. Bul. Essex Co. Orn. Cl. Salem **1921** p. 34–37.

742.—Townsend, F. S. Eggs of *Coccyzus cafer*. S. Afr. J. Nat. Hist. **3** 1921 pp. 220–222.

743.—Tratz, E. P. Ueber des Vorkommen von für des österreichische Alpengebiet seltenen Vögeln in den Jahren 1919 und 1920. Ornith. Monatsber. Berlin **29** 1921 pp. 31–33.

744.—Tratz, E. P. Eine Vogel-mumie aus einem Torfziegel. Orn. Monatsb. Berlin **29** 1921 pp. 89–91 fig.

745.—Tratz, P. Massensterben von Vögeln in folge eines Schneefalles um die Mitte April in den österreichischen Alpenländern. Orn. Monatschr. Magdeburg **46** 1921 pp. 204–206.

746.—Tregellas, T. Further notes on the Lyre-bird (*Menura superba*). Emu Melbourne **21** 1921 pp. 95–103 4 photos.

747.—'T. Sant, L. van. Statistische onderzoeken betreffende het aantal eieren per broedsel bij Merel (*Turdus merula* L.) Zanglijster (*Turdus philomelus* Brehm aut. *philomelus clarkei* Hart.) en Groote Lijster (*Turdus viscivorus* L.). Ardea Leiden **10** 1921 pp. 27–32.

748.—Tschusi zu Schmidhoffen, V. v. Ein Gedenkblatt au der letzten Tiroler Bartgeier (*Gypaëtus barbatus*). Ornith. Beobach. Basel **18** 1921 pp. 177–182; also Ghidini, A. pp. 182–183.

749.—Turner, E. L. The Avocet at home. Bt. Bds. London **14** 1921 pp. 194–202 4 photos.

750.—Tyler, W. M. Obituary: Walter Faxon. Auk Lancaster Pa. **38** 1921 pp. 157–158.

751.—Uchida, S. Notes on two stragglers *Panurus biarmicus russicus* and *Turdus atrigularis*. Tori Tokyo **3** No. 11 1921 2 figs.

752.—Uexküll, J. von. Der Segelflug. Arch. Ges. Physiol. Berlin **187** 1921 p. 25 2 figs.

753.—Uppeln, K. Merkwürdiges "Vertrautsein" der Ringeltaube. Jahresber. Prov. Ver. Wiss. Munster **45** 1917 pp. 81–82.

754.—Vidgen, H. G. Birds visiting Cape York Peninsula and New Guinea. Emu Melbourne **20** 1921 pp. 227–228.

755.—Villamil, R. de. Soaring flight. A simple mechanical solution of the problem. pp. 1-48 London (Spon) 1920 8vo.

756.—Vitanyi, L. Versuche und Beobachtungen auf dem Gebiete des Vogelschutzes. Aquila Budapest 27 1921 pp. 31-38.

757.—Wace, R. H. Lista de aves de las islas Falkland. Hornero Buenos Aires 2 1921 pp. 194-204.

758.—Wachs, H. Die Vogelinsel Langenwerder im Jahre 1920. Ornith. Monatschr. Magdeburg 46 1920 pp. 49-62.

759.—Waite, H. W. Note on the nidification of Hodgson's Striated Swallow (*Hirundo nepalensis*). J. Bombay N. H. Soc. 27 1921 pp. 631-632.

760.—Wait, W. E. The Owls and Diurnal Birds of Prey found in Ceylon. Spolia Zeylan. Columbo 11 1921 pp. 317-380 1 pl.

761.—Wait, W. E. Occurrence of *Hypolais caligata* in Ceylon. Spolia Zeylan. Columbo 11 1921 pp. 406-407.

762.—Wang, C. C. The composition of Chinese edible birds' nests and the nature of their proteins. J. Biol. Chem. Baltimore 49 1921 pp. 429-439.

763.—Wang, C. C. The isolation and the nature of the amino sugar of Chinese edible birds' nests. J. Biol. Chem. Baltimore 49 1921 pp. 441-452.

764.—Ward, A. R. and Gallagher, B. A. Diseases of domesticated birds. pp. xii + 333 69 text-figs. New York (Macmillan Co.) 1920 8vo.

765.—Washburn, F. L. Further observations on Minnesota birds; their economic relations to the agriculturist. 16th Rep. State Entomologist Minnesota 1916 pp. 160-183 many figs.

766.—Watson, A. A study of the seasonal changes in avian testes [*Ligurinus chloris*]. J. Physiol. Cambridge 53 1919 pp. 86-91 3 figs.

767.—Watson, G. Ornithological note [Holy Island]. Vasculum Hexham 7 1921 pp. 62-64 117-119.

768.—Watson, K. M. The Tern colony on Blakeney Point. Trans. Norfolk Nat. Soc. 11 1921 pp. 168-179 2 pls. 1 text-fig.

769.—Wayne, A. T. The Green-tailed Towhee (*Oberholseria chlorura*) on the coast of South Carolina. Auk Lancaster Pa. 38 1921 p. 278.

770.—Wayne, A. T. Albinism in the Sharp-tailed Sparrow (*Passerherbulus caudacutus*). Auk Lancaster Pa. 38 1921 pp. 604-605.

771.—Welch, F. D. Bateleur Eagles. Avicult. Mag. London 12 1921 pp. 147-149.

772.—Wetmore, A. Wild Duck and Duck Foods on the Bear River marshes, Utah. Bul. U.S. Dept. Agr. Washington No. 936 1921 pp. 1-20.

773.—Wetmore, A. Further notes on birds observed near Williams, Arizona. Condor Berkeley Cal. 23 1921 pp. 60-64.

774.—Wetmore, A. Three new birds of the family Tinamidae from South America. J. Washington Acad. Sci. 11 1921 p. 434-437.

775.—Wetmore, A. A study of the body temperature of Birds. Smiths. Misc. Coll. Washington 72 No. 12 1921 pp. 1-52.

776.—White, H. L. Description of new Australian eggs collected by F. L. Whitlock at Dirk Hartog Island, Western Australia. Emu Melbourne 20 1921 pp. 186-190.

777.—White, H. L. Note on the Grass-Wren (*Amytornis textilis*). Emu Melbourne 20 1921 p. 190 pl. 20.

778.—White, H. L. Nests and eggs not previously described. Emu Melbourne 20 1921 pp. 193-194 pls. 21-22.

779.—White, H. L. Descriptions of Australian eggs new to science. Emu Melbourne 21 1921 pp. 31-32.

780.—White, H. L. The Naretha Parrot (*Psephotus narethae*) sp. nov. Emu Melbourne 21 1921 pp. 81-83 col. pl.

781.—White, S. A. A central Australian Expedition. Emu Melbourne 21 1921 pp. 84-94 8 photos.

782.—White, S. A. and others. Birds observed during the visit of the R. A. O. U. to Western Australia. Emu Melbourne 20 1921 pp. 124-144 photos.

783.—Whitlock, F. L. Notes on Dirk Hartog Island and Peron Peninsula, Shark Bay, Western Australia. *Emu Melbourne* **20** 1921 pp. 168–186 map and photos.

Whitlock, F. L. *vide* Carter.

784.—Willett, G. Ornithological notes from south-eastern Alaska. *Auk Lancaster Pa.* **38** 1921 pp. 127–129.

785.—Willett, G. Distribution of the Townsend Fox Sparrow. *Condor Berkeley Cal.* **23** 1921 pp. 36–37.

786.—Willett, G. Bird notes from south-eastern Alaska. *Condor Berkeley Cal.* **23** 1921 pp. 156–159.

787.—Williams, M. Y. Notes on the fauna of Lower Pagwachuan, Lower Kenogami and Lower Albany rivers of Ontario. *Canad. Field Nat. Ottawa* **35** 1921 pp. 94–98.

788.—Williamson, W. J. F. The status of the Burmese House-Crow (*Corvus splendens insolens*) as a Siamese bird. *J. Nat. Hist. Soc. Siam Bangkok* **21** 1921 pp. 105–107; also Bulkley, L. C. p. 195.

789.—Williamson, W. J. F. The Giant Ibis (*Thaumatibis gigantea*) in Cambodia. *J. Nat. Hist. Soc. Siam Bangkok* **4** 1921 p. 196.

790.—Wilson, E. S. Whistling Swans (*Olor columbianus*). *Proc. Indiana Acad. Sci. for 1920* 1921 pp. 83–85.

791.—Witherby, H. F. and others. A practical handbook of British Birds. Pts. 10–12 pp. 81–352 many illustr. London (Witherby) 1921 8vo.

792.—Witherby, H. F. Notes on British records of the Spotted Eagle and Steppe Buzzard and on the British Tawny Owl. *Bt. Bds. London* **14** 1921 pp. 180–183, also p. 209.

793.—Witherby, H. F. The “British Birds” marking scheme. *Progress for 1920*. *Bt. Bds. London* **14** 1921 pp. 203–207.

794.—[Witherby, H. F.] Recovery of marked birds. *Bt. Bds. London* **15** 1921 pp. 111–113.

795.—Witherby, H. F. On the British taken examples of the “Levan-

tine” Shearwater. *Brit. Bds. London* **15** 1921 pp. 151–153.

796.—Witherby, H. F. and others. Additions and corrections to the “Hand-List of British Birds.” Fourth List. *Brit. Bds. London* **15** 1921 pp. 2–3.

797.—Witherby, H. F. Remarks on birds from Portugal. *Bul. Bt. Orn. Cl. London* **41** 1921 pp. 67–70.

Witherby, H. F. *vide* Bonhote.

798.—Wolff, G. Physikalisch - biologische Beobachtungen an Schmetterlingsflügeln, Vogelfedern und anderen organischen Gehilden. *Biol. Zentralbl. Leipzig* **40** 1920 pp. 248–259 4 figs.

799.—Wollaston, A. F. R. Life of Alfred Newton. pp. xvi + 332 5 portraits London (Murray) 1921 8vo.

800.—Wolstenholme, H. Indian Bulbul (*Otocompsa jocosus*) naturalized near Sydney. *Emu Melbourne* **21** 1921 p. 74; also J. MacPherson pp. 145–146.

801.—Wood, N. A. Rare records for Ann Arbor and the State of Michigan. *Auk Lancaster Pa.* **38** 1921 pp. 282–283.

802.—Wood, N. A. Some southern Michigan bird-records. *Auk Lancaster Pa.* **38** 1921 pp. 590–594.

803.—Wood, T. Birds one should know—beneficial and mischievous. Illustrated by R. Green, F.Z.S. pp. xii + 132 8 col. 16 uncol. pls. London (Gay and Hancock) 1921 8vo.

804.—Woods, R. S. Notes on two characteristic birds of the San Gabriel wash. *Condor Berkeley Cal.* **23** 1921 pp. 47–49 4 photos.

805.—Woods, R. S. Home life of the Black-tailed Gnatcatcher. *Condor Berkeley Cal.* **23** 1921 pp. 173–178 7 photos.

806.—Wright, H. W. Bohemian Waxwing (*Bombycilla garrula*) in New England. *Auk Lancaster Pa.* **38** 1921 pp. 59–78.

807.—Wright, H. W. The Mocking bird in the Boston region and in New England and Canada. *Auk Lancaster Pa.* **28** 1921 pp. 382–432.

808.—Zedlitz, Graf O. von. Die Avifauna des westlichen Pripjet-Sumpfes im Lichte der Forschung deutscher Ornithologen in den Jahren 1915–1918. J. Ornith. Leipzig 69 1921 pp. 50–90 269–406.

809.—Zedlitz, Graf O. von. Ett bidrag till di svenska kajornas, *Coloeus monedula*, systematik. Fauna och Flora Uppsala 1921 pp. 275–280 4 figs.

810.—Zedlitz, Graf O. von. Die Formen von *Parisoma subcaeruleum*. Ornith. Monatsb. Berlin 29 1921 pp. 51–52.

811.—Zelterberg, H. Flyttfåglarnas ankomst till södra Lappland. Fauna och Flora Uppsala 1921 pp. 120–125.

812.—Zeyk, N. Die Vögel Siebenbürgens, herausgegeben von Jakob Schenk. Aquila Budapest 27 1921 pp. 71–243 portr.

813.—Ziemer, W. Vorkommen des Sperlingskauzes (*Glaucidium passerinum* L.) in der Mark. Zs. Oologie Neumark 25 1920 pp. 17–19; also Schalow pp. 26–27.

814.—Zimmermann, R. Einiger Ergänzungen zu Rich. Schlegels Aufzeichnungen über das Vorkommen unserer Drosselarten im Leipziger Flachlandsgebiet, in Mittelsachsen und im Erzgebirge. J. Ornith. Leipzig 69 1921 pp. 201–211.

815.—Zimmermann, R. Tragen die Vögel ihre gefährdeten Jungen fort? Ornith. Monatsb. Berlin 29 1921 pp. 9–12.

816.—Zimmermann, R. Ueber einige Beobachtung an höhlenbrütenden Kleinvögeln. Ornith. Monatschr. Magdeburg 46 1921 pp. 13–31 8 figs.

817.—Zimmermann, R. u. Rüdiger, W. Ornithologische Beobachtungen aus dem Waldgebiet von Bialowie. Zs. Oologie Neumark 26 1921 pp. 1–15 35–47.

818.—Zumstein, F. Der Ortolan (*Emberiza hortulana* L.) Brutvogel in der Pfalz. Verhandl. Orn. Ges. Bay. München 15 1921 pp. 68–73.

819.—Zwiesele. Ornithologischer Bericht aus Württemberg und dem badischen Bodenseegebiet. Ornith. Beob. Basel 18 1921 pp. 147–153.

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MARTIN A. C. HINTON.

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2.—Adloff, P. Einige Bemerkungen über das Gebiss des Ehringsdorfer Unterkiefers. *Anat. Anz. Jena* 49 1916 pp. 51-56.

3.—Adloff, P. Zur Entwicklungsgeschichte des Zahnsystems von *Centetes caudatus* nebst Bemerkungen zur Frage der Existenz einer präpermanenter Dentition. *Anat. Anz. Jena* 49 1917 pp. 503-600.

4.—Adloff, P. Zur Frage der Konkreszenztheorie. *Anat. Anz. Jena* 50 1917 pp. 286-288.

5.—Adloff, P. Einige Bemerkungen über das Problem der Entstehung der Zahnform. *Anat. Anz. Jena* 50 1917 pp. 348-354.

6.—Adloff. Die Beziehungen zwischen Reptilien-, Beutler- und Plazentalier-Gebiss. *Anat. Anz. Jena* 51 1918 pp. 129-142.

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7.—Adloff. Zur Ontogenie des Elefantengebisses. *Anat. Anz. Jena* 52 1920 pp. 534-540.

8.—Adloff. Über das Problem der Entstehung der Zahnform. *Anat. Anz. Jena* 53 1920 pp. 175-191.

9.—Agduhr, E. Morphologischer Beweis der doppelten (plurisegmentalen) motorischen Innervation der einzelnen quergestreiften Muskelfasern bei den Säugetieren. *Anat. Anz. Jena* 49 1916 pp. 1-13.

10.—Agduhr, E. Beitrag zur Kenntnis der kongenitalen Anomalien des Canidengebisses (Vergleiche zwischen Rassehunden, gewöhnlichen Haushunden und wilden Vertretern des Hundgeschlechts). *Stockholm Vet.-Ak. Handl.* 61 No. 17 1921 pp. 1-55 7 pls.

11.—Ahrens, T. G. The present status of the European Bison or Wisent. *J. Mammal. Baltimore* 2 1921 pp. 58-62.

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- 14.—Aichel, O. Ist Konkreszenz als Faktor bei der phylogenetischen umwandlung der Zahnform sicher-gestellt? *Anat. Anz. Jena* 50 1917 pp. 97-110.
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- 17.—Allen, A. A. Banding Bats. *J. Mammal. Baltimore* 2 1921 pp. 53-57.
- 18.—Allen, G. M. A new fossil Cetacean. *Bul. Mus. Comp. Zool. Cambridge Mass.* 65 No. 1 1921 pp. 1-14 pl.
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- 20.—Altobello, G. Fauna dell' Abruzzo e del Molise. Mammiferi IV I. Carnivori (*Carnivora*). Campobasso 1921 pp. 1-61.
- 21.—Ameghino, C. Los yacimientos fosilíferos del Valle de Santa Maria en Catamarca y Tucuman. *Prim. Réun. Nac. soc. Arg. Cienc. Nat. Buenos Aires* 1919 pp. 145-149.
- 22.—Ameghino, C. Sobre algunos heusos fosiles que presentan surcos erróneamente atribuidos a la acción del hombre. *Prim. Réun. Nac. soc. Arg. Cienc. Nat. Buenos Aires* 1919 pp. 154.
- 23.—Ameghino, C. Sobre un col-millo del oso fosil (*Arctotherium*) del ensenadense de Buenos Aires, trabajado por el hombre contemporaneo. *Prim. Réun. Nac. soc. Arg. Cienc. Nat., Buenos Aires* 1919 pp. 155-6 pl. viii fig. 3.
- 24.—Ameghino, C. Sobre mamíferos fosiles del piso araucanense de Cata-marca y Tucuman. *Prim. Réun. Nac. soc. Arg. Nat. Buenos Aires* 1919 pp. 150-156 5 pls.
- 25.—Ameghino, C. y Kraglievich, L. Descripcion del *Megatherium gallardoi* C. Ameg., decubierto en el Pampeano Inferior de la ciudad de Buenos Aires. *An. Mus. Nac. Hist. Nat., Buenos Aires* 31 1921 pp. 135-156 pls. 5.
- 26.—Anderson, R. M. John Macoun (1832-1920). *J. Mammal. Baltimore* 2 1921 pp. 32-41.
- 27.—Andrews, R. C. A remarkable case of external hind limbs in a Hump-back Whale. *Amer. Mus. Novit. New York No.* 9 1921 pp. 1-6.
- 28.—Anthony, H. E. New mammals from British Guiana and Colombia. *Amer. Mus. Novit. New York No.* 19 1921 pp. 1-7.
- 29.—Anthony, H. E. Preliminary report on Ecuadorean mammals. No. 1 *Amer. Mus. Novit. New York No.* 20 1921 pp. 1-6.
- 30.—Anthony, H. E. Mammals collected by William Beebe at the British Guiana Tropical research station. *Zool. Soc. Bul. New York* 3 1921 pp. 265-285.
- 31.—Argaud, R. Sur les premiers développements du canal de Müller chez les Mammifères. *Bull. Soc. hist. nat. Alger* 12 1921 4 figs. pp. 14-18.
- 32.—Aschmeier, C. R. On the Gorilla and the Chimpanzee. *J. Mammal. Baltimore* 2 1921 pp. 90-92.
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- Baker, Marion L. *vide* Benedict, F. G.
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39.—**Baum, H.** Die Lymphgefäße der Gelenke der Schulter- und Beckengliedmasse des Pferdes. *Anat. Anz. Jena* 53 1920 pp. 37–46.

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42.—**Benedict, F. G., Fox, E. L. and Baker, Marion L.** The skin temperature of pachyderms. *Proc. Nat. Acad. Sci. Washington* 7 1921 pp. 154–156.

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48.—**Blayac, J.** Nouvelles découvertes de Mammifères dans le sannoisien et le stampien inférieur du Lot-et-Garonne. *Compte-Rendu soc. géol. France Paris* 1918 pp. 103–4.

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52.—**Bolk, L.** Die "Bulla maxillaris" des Gorilla. *Anat. Anz. Jena* 50 1917 pp. 277–282.

53.—**Bolk, L.** Über das kaudale Rumpfe eines Fetus vom Schimpanse. *Anat. Anz. Jena* 50 1917 pp. 354–358.

54.—**Bolk, L.** Odontological Essays. First Essay. On the development of the palate and alveolar ridge in Man. *J. Anat. London* 55 1921 pp. 138–152. Second Essay on the development of the enamel germ pp. 152–186.

55.—**Bolk, L.** Odontological Essays. Third Essay on the tooth glands in reptiles and their rudiments in mammals. *J. Anat. London* 55 1921 pp. 219–234.

56.—**Booth, H. B.** Yorkshire Bats. *Naturalist London* 1921 1921 pp. 361–363.

57.—**Borggreve, H.** Zuchtversuche bei Eisbären in der Gefangenschaft. *Jahresber. Prov.-Ver. Wiss. Münster* 43 1915 pp. 120–1.

58.—**Bourban, P. I.** La chasse aux ours en Valais. II. Le procès de l'ours de Clèves. *Bull. Murith. Sion* 40 1920 pp. 80–85.

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60.—**Bregmann, L. E.** Neue Untersuchungen zur Kenntnis der Pyramidenbahn. 2. Die Oblongata pyramide des Elephanten. *Anat. Anz. Jena* 48 1915 pp. 235–240.

- 61.—Brives, A. Sur la présence du Mastodon dans la sablière du Konif, près Tebessa. *Compte-Rendu soc. géol. France Paris* 1920 p. 212.
- 62.—Broman, J. Die Parotis der Chiroptera eine Oberlippendrüse. *Anat. Anz. Jena* 49 1916 pp. 65-71.
- 63.—Broman, J. Über eine bisher unbekannte infraseptale Nasenhöhleendrüse bei den Nagern. *Anat. Anz. Jena* 49 1916 pp. 170-174.
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- 69.—Bujard, E. Une déformation des mâchoires chez le rat albinos. *C. R. Soc. Phys. Hist. Nat. Genève* 36 1919 pp. 7-11 3 figs.
- 70.—Bujard, E. Apropos d'un cas d'opocéphalie chez le cobaye les synotocyclopes et les strophocéphales. *C. R. Soc. Phys. Hist. Nat. Genève* 36 1919 pp. 43-50.
- 71.—Bujard, E. Structures atypiques de deux ovotestes de Porc. *C. R. Soc. biol. Paris* 84 1921 pp. 112-114.
- 72.—Bujard, E. De la genèse des ovotestis chez les mammifères. *C. R. Soc. biol. Paris* 84 1921 pp. 114-116.
- 73.—Burlet, H. M. de. Der perilymphatische Raum des Meerschweinchenohres. *Anat. Anz. Jena* 53 1920 pp. 302-315.
- 74.—Burton, R. G. Panthers. *J. Bombay Nat. Hist. Soc.* 26 1918 pp. 266-278.
- 75.—Busacca, A. Sulle vie efferenti delle eminenze quadrigemelle del cane. *Mon. Zool. Firenze* 31 1920 pp. 125-130.
- 76.—Cabrera, A. Los Murinae de Marruecos. *R. Soc. Espan. Hist. Nat. Madrid Tomo del 50° Aniv.* 1921 pp. 42-58.
- 77.—Cabrera, A. Algunos Carnívoros Africanos nuevos. *Bol. R. Soc. Esp. H. N. Madrid* 21 1921 pp. 261-264.
- 78.—Cabrera, A. El Caballo Moruno. Documentos para la historia de los Caballos Africanos, especialmente los de Marruecos. *Mem. R. Soc. Esp. Hist. Nat.* 12 1921 pp. 1-120.
- 79.—Cahn, A. R. The mammals of Itasca county, Minnesota. *J. Mammal. Baltimore* 2 1921 pp. 68-74.
- 80.—Čamek, J. Investigation of the hair of different breeds of cattle. *J. Agric. Sci. Cambridge* 10 1920 pp. 12-21.
- 81.—Carette, E. Los proboscideos fósiles argentinos. (Nota preliminar.) *Prim. Réun. Nac. Soc. Arg. Cienc. nat. Buenos Aires* 1919 pp. 166-180 2 pls.
- Cattell, M. *vide* Forbes, A.
- 82.—Chaine, J. Caractères distinctifs des os péniens de Loup et de Chien. *C. R. soc. biol. Paris* 84 1921 pp. 125-126.
- 83.—Chapman, A. Colour Protection considered chiefly in relation to wild beasts and birds in the Sudan. (Reprinted from "Savage Sudan"; London, Gurney and Jackson) 1921 pp. 1-30.
- 84.—Cheesman, R. E. Report on the mammals of Mesopotamia, collected by members of the Mesopotamian Expeditionary Force, 1915 to 1919. *J. Bombay Nat. Hist. Soc.* 27 1920 pp. 1-24.
- 85.—Cheesman, R. E. Report on a collection of mammals made by Col. J. E. B. Holson in Shiraz, Persia. *J. Bombay Nat. Hist. Soc.* 27 1920 pp. 33-41.
- Cobb, S. J. *vide* Forbes, A.
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- 87.—**Corner, G. W.** A review of some recent work on the mammalian reproductive cycle. *J. Mammal. Baltimore* 2 1921 pp. 227-231.
- 88.—**Courrier, R.** Contribution à l'étude morphologique et fonctionnelle de l'épithélium du pavillon de l'oviducte chez les mammifères. *C.R. soc. biol. Paris* 84 1921 pp. 571-572.
- 89.—**Courrier, R.** Sur le rôle physiologique des sécrétions utérine et tubaire chez le Chauve-Souris hibernante. *C.R. soc. biol. Paris* 84 1921 pp. 572-574.
- Covell, M. D.** *vide* Gowen, J. W.
- 90.—**Craigie, E. H.** The vascularity of the cerebral cortex of the albino rat. *J. Comp. Neur. Philadelphia* 33 1921 pp. 193-212 5 figs.
- 91.—**Davies, J. A.** Aveline's Hole, Burrington Coombe. An Upper Palaeolithic Station. *Proc. Spelaeol. Soc. Bristol* 1 1921 pp. 61-72.
- Davin, A. G.** *vide* Pearson, K.
- 92.—**de Beaux, O.** Una nuova Crisocloride della Colonia del Capo. Con rassegna bibliografica 1900-1920 e catalogo della famiglia. *Atti soc. ital. sc. nat. Pavia* 60 1921 pp. 230-240.
- 93.—**de Beaux, O.** Considerazioni di morfologia su di un cranio patologico di Amadriade (*Hamadryas Hamadryas*, L.). *Atti Soc. ligustica sc. nat. geogr. Genova* 32 No. 3 1921 pp. 1-16 Tav.
- 94.—**de Burlet, H. M.** und **de Ruiter, J.** Zur Entwicklung und Morphologie des Säugerhodens. *Anat. Hefte Wiesbaden* 1. abth 59 1921 pp. 321-383 21 figs.
- 95.—**Decisi, A.** La classificazione dei Lemuri dell'Elliot. *Mon. Zool. Firenze* 31 1920 pp. 41-45.
- de Kleyn, A.** *vide* Magnus, R.
- 96.—**Del Campana, D.** Considerazione sulle antilopi Terziarie della Toscana. *Palaeontogr. Italica Pisa* 24 1918 pp. 147-233 5 pls. 19 text-figs.
- 97.—**Dennler, G.** Zur Methodik in der Tierpsychologie. *Das Pferd G. Biol. Centralbl. Leipzig* 40 1920 pp. 175-193.
- 98.—**D'Eternod, A. C. F.** Les différentes instances des formations squelettiques. *C.R. Soc. Phys. Hist. Nat. Genève* 38 1921 pp. 27-32 2 figs.
- de Ruiter, J.** *vide* de Burlet, H. M.
- 99.—**Dice, L. R.** Notes on the mammals of interior Alaska. *J. Mammal. Baltimore* 2 1921 pp. 20-28.
- 100.—**Dietrich, W. O.** Über die Hand und den Fuss von *Dinotherium*. *Zs. D. Geol. Ges. Berlin* 68 1916 pp. 44-53.
- 101.—**Dietrich, W. O.** Ueber den "horizontalen Zahnwechsel" bei *Mastodon* und *Elephas*. *Centralbl. Min. Stuttgart* 1921 pp. 595-602 4 text-figs.
- 102.—**Dietrich, W. O.** Zur spätglazialen Steppenfauna. *Centralbl. Min. Stuttgart* 1921 pp. 734-736.
- 103.—**Disselhorst, R.** "Die Saisonfunktion des Nebenhodens vom Maulwurf." *Anat. Anz. Jena* 54 1921 pp. 285-286.
- 104.—**Doeschate, G. ten.** Über die Retina von Walembryonen. *Anat. Anz. Jena* 51 1918 pp. 200-205.
- 105.—**D'Ossat, G. de A.** Rinvenimento di mammiferi fossili nel pliocene lacustre e salmastro Umbro. *Boll. Soc. Geol. Ital. Rome* 37 1919 pp. 39-40.
- Downey, H.** *vide* Thiel, G. A.
- 106.—**Dunn, L. C.** Unit Character Variation in Rodents. *J. Mammal. Baltimore* 2 1921 pp. 125-139.
- 107.—**Eckstein, K.** Beiträge zur genaueren Kenntniss der Wildkatze. *Arch. Natg. Berlin Abt. A* 85 Hft. 12 1920 pp. 1-59 4 pls.
- 108.—**Eggeling, H. von.** Inwieweit ist der Wurmfortsatz am menschlichen Blinddarm ein rudimentäres Gebilde? *Anat. Anz. Jena* 53 1920 pp. 401-428.
- 109.—**Ehik, J.** The Glacial Theories in the light of biological investigation. *Ann. Mus. Nat. Hungarici Budapest* 18 1921 pp. 89-110.
- 110.—**Ehrmann, F.** Le Quaternaire des Grottes de Ziana. *Bull. soc. hist. nat. Alger* 11 1920 pp. 119-120.

- 111.—Ehrmann, F. *L'Elephas africanus* à Beni-Sai (Oranie). Bull. soc. hist. nat. Alger 11 1920 pp. 139–40 1 fig.
- 112.—Ellinger, T. The influence of age on fertility in swine. Proc. Nat. Acad. Sci. Washington 7 1921 pp. 134–138.
- 113.—Erdmann, R. Das Verhalten der Herzklappen der Reptilien und Mammalien in der Gewebekultur. Arch. EntwMech. Leipzig 48 1921 pp. 571–620 3 plates 8 text-figs.
- 114.—Evermann, B. W. The Año Nuevo Steller Sea Lion Rookery. J. Mammal. Baltimore 2 1921 pp. 16–19.
- 115.—Fawcett, E. The primordial cranium of *Tatusia novemcincta* as determined by sections and models of the embryos of 12 millimetre and 17 millimetre C.R. length. J. Anat. London 55 1921 pp. 187–217 pls. vii–xv.
- 116.—Fernandez, M. Über einige Entwicklungsstadien des Peludo (*Dasyppus villosus*) und ihre Beziehung zum Problem der spezifischen Polyembryonie des Genus *Tatusia*. Anat. Anz. Jena 48 1915 pp. 305–327.
- Ferres, A. vide Pictet, A.
- 117.—Fiebigger, J. Über Eigentümlichkeiten im Aufbau der Delphinlunge und ihre physiologische Bedeutung. Anat. Anz. Jena 48 1916 pp. 540–565.
- 118.—Fischer, E. Über die Variationen der Hirnfurchen des Schimpansen. Verh. Anat. Ges. Jena 54 1921 pp. 48–54.
- 119.—Forbes, A., Cobb, S. J., Cattell, M. An electrocardiogram and an electromyogram in an elephant. Amer. J. Physiol. 55 1921 pp. 385–389 3 figs.
- 120.—Forster, A. Die tiefe Schicht der Wadenmuskeln beim Kaninchen. Anat. Anz. Jena 49 1916 pp. 81–94.
- 121.—Forster, A. Der M. extensor tarsi (Peroneus tertius?) bei *Hapale jacchus*. Anat. Anz. Jena 49 1916 pp. 257–276.
- 122.—Forster, A. Zur Anatomie des Flexor brevis digiti quinti "proprius" pedis und des Flexor brevis digiti quinti "interosseus" pedis. Anat. Anz. Jena 50 1917 pp. 129–146.
- 123.—Forster, A. Zur Morphogenese der Inscriptio tendinea des M. semitendinosus. Anat. Anz. Jena 51 1918 pp. 145–164.
- Fox, E. L. vide Benedict, F. G.
- 124.—Gans, A. Die Pyramidenbahn der *Phocaena*. Anat. Anz. Jena 49 1916 pp. 281–284.
- 125.—Gerlach, F. Untersuchungen an der Epiphysis cerebri von Pferd und Rind. Anat. Anz. Jena 50 1917 pp. 49–65.
- 126.—Gessner, I. Über die Gliederung der Rippen bei den Säugetieren. Anat. Anz. Jena 54 1921 pp. 271–273.
- 127.—Gierlich, N. Zur vergleichen Anatomie der aus den Grösshirn stammenden Faserung. I. Der Anteil des Pes pedunculi am Pedunculusquerschnitte bei verschiedenen Säugetieren. Anat. Anz. Jena 49 1916 pp. 24–28.
- 128.—Gierlich, N. Zur vergleichen Anatomie der aus dem Grösshirn stammenden Faserung. 2. Der Anteil des Kleinhirns an den im Pes pedunculi herabziehenden Gehirnbahnen bei verschiedenen Säugetieren. Anat. Anz. Jena 49 1916 pp. 123–128.
- 129.—Gierlich, N. Zur vergleichen Anatomie der aus dem Grösshirn stammenden Faserung. 3. Der Anteil des Cerebellum sowie der motorischen Kernlager des Hirnstammes und des Rückenmarks an dem Pes pedunculi bei *Phocaena* and *Delphinus delphis*. Anat. Anz. Jena 49 1916 pp. 285–288.
- 130.—Goldman, E. A. Two new rodents from Oregon and Nevada. J. Mammal. Baltimore 2 1921 pp. 232–233.
- 131.—Gowen, J. W. Inheritance in crosses of dairy and beef breeds of cattle. J. Heredity Washington 11 1920 pp. 365–376.
- 132.—Gowen, J. W. and Covell, M. R. Studies in milk secretion. IX. On the progeny performance of Holstein-Friesian Sires. Ann. Rep. Maine Agric. Exper. Sta. Orono Maine 1921 pp. 121–252.
- 133.—Gregory, W. K. On the structure and relations of *Notharctus*, an American Eocene Primate. Mem. Amer. Mus. Nat. Hist. New York N.S. 3 1920 pp. 49–243 pls. xxiii–lix.

- 134.—Greil, A. Über die teratogenetische Bedeutung der Proigenese des Amnions. *Anat. Anz. Jena* 53 1920 pp. 100–107.
- 135.—Grinnell, J. Revised list of the species in the genus *Dipodomys*. *J. Mammal. Baltimore* 2 1921 pp. 94–97.
- 136.—Grinnell, J. Two new Rodents (Genera *Thomomys* and *Marmota*) from the eastern border of California. *Univ. Cal. Pub. Zool. Berkeley* 21 No. 6 1921 pp. 239–244 6 figs.
- 137.—Grinnell, J. and Storer, T. I. Life Zones of the Yosemite Region. *Hall's Handbook of Yosemite National Park* New York (G. P. Putnam & Sons). 1921 pp. 123–132.
- 138.—Grinnell, J. and Storer, T. I. Some Mammals of Yosemite National Park. *Hall's Handbook of Yosemite National Park*. New York (G. P. Putnam & Sons) 1921 pp. 155–173.
- 139.—Grosser, P. Die Beziehungen zwischen Eileiter und Ei bei den Säugetieren. *Anat. Anz. Jena* 48 1915 pp. 92–108.
- 140.—Grosser, O. Die Aufgaben des Eileiters der Säugetiere. *Anat. Anz. Jena* 50 1918 pp. 489–510.
- 141.—Grote, H. Neue Erdferkel (*Orycteropus*) aus Deutsch-Ostafrika und Kamerun. *Arch. Natg. Berlin Abt. A* 87 Hft. 7 1921 pp. 121–127 2 figs.
- 142.—Hagström, M. Die Entwicklung der Thymus beim Rind. *Anat. Anz. Jena* 53 1921 pp. 545–566.
- 143.—Hammond, J. On the relative growth and development of the various breeds and crosses of sheep. *J. Agric. Sci. Cambridge* 11 1921 pp. 367–407.
- 144.—Hanke, A. Osteomalakische Erkrankung bei einem jugendlichen Gorillaweibchen, zugleich ein Beitrag zur Kenntnis der osteomalakischen Prozesse. *Jenaische Zs. Natw.* 55 1917 pp. 67–100.
- 145.—Hanke, H. Über die Brustflosse von *Mesoplodon bidens* (Sow.) *Anat. Anz. Jena* 48 1915 pp. 59–62.
- 146.—Hay, O. P. Descriptions of species of Pleistocene Vertebrata, types or specimens of most of which are preserved in the United States National Museum. *Proc. U.S. Nat. Mus. Washington* 59 1921 pp. 599–642 pls. cxvi–cxxiv.
- 147.—Herrick, C. J. A description of the brain of *Caenolestes*. *Field Mus. Publ. Zool. Ser. Chicago* 14 1921 pp. 157–162 pls. xxi–xxii.
- Herrmann, E. *vide* Stein, M.
- 148.—Hesse, R. Über den Einfluss des Untergrundes auf das Gedeihen des Rehens. *Zool. Jahrb. Jena Abt. f. allg. Zool.* 38 1921 pp. 203–242.
- 149.—Hesse, R. Das Herzgewicht der Wirbeltiere. *Zool. Jahrb. Jena Abt. f. allg. Zool.* 38 1921 pp. 243–364.
- 150.—Heuser, C. H. The early establishment of the intestinal nutrition in the Opossum: The digestive system just before and soon after birth. *Amer. J. Anat. Philadelphia* 28 1921 pp. 341–369 6 plates.
- 151.—Hietel, F. Schuppenförmige Profilierung der Hautoberfläche des Hundes. *Anat. Anz. Jena* 49 1916 pp. 97–109.
- 152.—Hilber, V. Alter der *Pithecanthropus*-Schichten. *Centralbl. Min. Stuttgart* 1921 pp. 169.
- 153.—Hilzheimer, M. Dritter Beitrag zur Kenntnis der Bisonten. *Arch. Natg. Abt. A* 84 Hft. 6 1920 pp. 41–87 25 figs.
- 154.—Hilzheimer, M. Die Halswirbelsäule von *Bos* und *Bison*. *Arch. Natg. Berlin Abt. A* 87 Hft. 7 1921 pp. 1–63 57 figs.
- 155.—Hines, Marion. The superior olive in *Ornithorhynchus*. *J. Anat. London* 55 1921 pp. 290–291.
- 156.—Hinton, M. A. C. *Paragnyx*, a new genus of Clawless Otter discovered by Capt. J. E. Philipps, M.C., in Central Africa. *Ann. Mag. Nat. Hist. London* (9) 7 1921 pp. 194–200.
- 157.—Hinton, M. A. C. Some new African mammals. *Ann. Mag. Nat. Hist. London* (9) 7 1921 pp. 368–373.
- 158.—Hinton, M. A. C. A new Bank-Vole from Esthonia. *Ann. Mag. Nat. Hist. London* (9) 8 1921 pp. 128–129.

159.—Hinton, M. A. C. The Klipspringers of Rhodesia, Angola, and Northern Nigeria. *Ann. Mag. Nat. Hist. London* (9) 8 1921 pp. 129-133.

160.—Hinton, M. A. C. Note on the remains of small mammals obtained from Aveline's Hole, Burrington Combe, Somerset. *Proc. Spelaeol. Soc. Bristol* 1 1921 pp. 74-78.

161.—Hinton, M. A. C. and Wroughton, R. C. The synonymies, characters and distribution of the Macaques included under the names *rhesus* and *assamensis* in Blanford's Mammals. *J. Bombay Nat. Hist. Soc.* 27 1921 pp. 665-672.

162.—Hinton, M. A. C. and Wroughton, R. C. On the nomenclature of the South Indian Long-tailed Macaques. *J. Bombay Nat. Hist. Soc.* 27 1921 pp. 813-815.

✓ Hinton, M. A. C. *vide* Thomas, O.

163.—Hirsch, M. Der Lückzahn von *Sus domesticus*, ein Beitrag zur Entwicklungsgeschichte des Gebisses von *Sus domesticus* und zur Kenntnis des Wesens der Dentitionen. *Anat. Anz. Jena* 54 1921 pp. 321-330.

164.—Hobson, E. C. The curiosity of the prowling mink. *J. Mammal. Baltimore* 2 pp. 168-170.

165.—Holl, M. Vergleichende Anatomie der hinteren Fläche des Mittelstückes der Unterkiefer. *Anz. Akad. Wiss. Wien* 56 1919 pp. 67-69.

166.—Hollister, N. The names for two genera of African artiodactyla. *Proc. Biol. Soc. Washington* 34 1921 pp. 77.

Hollister, N. *vide* Miller, G. S.

167.—Holm, O. De bottniska själarnes lefnadsvanor. Fauna och Flora Uppsala 16 1921 pp. 241-261.

168.—Holmes, A. H. The auriculo-ventricular bundle in mammals. *J. Anat. London* 55 1921 pp. 269-285.

169.—Holst, H. Litt om tamme ekorn (*Sciurus vulgaris*) og smaaafugl ned Mesnalien. *Naturen Bergen* 1920 pp. 378-382 4 figs.

170.—Honigmann, H. Das Primordialkranium von *Megaptera nodosa* Bonnat. *Anat. Anz. Jena* 48 1915 pp. 113-127.

171.—Hornaday, W. T. The fur trade and the wild animals. *Zool. Soc. Bull. New York* 24 1921 pp. 25-52.

How, H. W. *vide* Addison, W. H. F.

172.—Howell, A. B. Description of a new species of *Phenacomys* from Oregon. *J. Mammal. Baltimore* 2 1921 pp. 98-100.

173.—Howell, A. H. A biological survey of Alabama. I. Physiography and Life Zones. II. The Mammals. *North Amer. Fauna Washington No.* 45 1921 pp. 1-88.

174.—Huber, E. Über das Muskelgebiet des N. facialis bei Katze und Hund, nebst allgemeinen Bemerkungen über die Facialis muskulatur der Säuger. *Anat. Anz. Jena* 51 1918 pp. 1-17.

175.—Hurst, E. W. Note on the lachrymal gland of the hedgehog. *J. Anat. London* 55 1920 pp. 49-55.

176.—Iguchi, K. Untersuchungen über die Japanischen Bovidien. *J. Coll. Agric. Hokkaido Imp. Univ.* 9 1921 pp. 261-304 pls. vii-xii and 13 folding tables.

177.—Jackson, H. H. T. The status of Merriam's shrew (*Sorex merriami*). *J. Mammal. Baltimore* 2 1921 pp. 29-31.

178.—Jackson, H. H. T. A Hybrid Deer of the F 2 Generation. *J. Mammal. Baltimore* 2 1921 pp. 140-143.

179.—Jackson, H. H. T. Two unrecognized Shrews from California. *J. Mammal. Baltimore* 2 1921 pp. 161-162.

180.—Jacobi, A. Die Nase des Elchs (*Alces alces* L.). *Anat. Anz. Jena* 53 1919 pp. 41-46.

181.—Jacobi, A. Die Rüsselbildung bei Säugetieren der Gegenwart und Vorzeit. *Jenaische Zs. Natw.* 57 1921 pp. 199-218.

182.—Jacobson, E. Notes on some mammals from Sumatra. *J. Fed. Malay Mus. Kuala Lumpur* 10 1921 pp. 235-240 pl.

183.—Johnson, C. E. A note on the habits of the Timber Wolf. *J. Mammal. Baltimore* 2 1921 pp. 11-19.

184.—Johnson, C. E. The "Hand-Stand" habit of the Spotted Skunk. *J. Mammal. Baltimore* 2 1921 pp. 87-89.

- 185.—Joleaud, L. Les Gazelles pliocènes et quaternaires de l'Algérie. *Compte-Rendu soc. géol. France Paris* 1917 pp. 30-31.
- 186.—Joleaud, L. Contribution à l'étude des Hippopotames fossiles. *Compte-Rendu soc. géol. France Paris* 1920 pp. 22-3.
- 187.—Joleaud, L. Contribution à l'étude des Hippopotames fossiles. *Bull. soc. géol. Paris* 30 1920 pp. 13-26 1 pl.
- 188.—Jones, F. W. The External Characters of Pouch Embryos of Marsupials. No. 2 *Notoryctes typhloops*. *Trans. R. Soc. S. Aust. Adelaide* 55 1921 pp. 36-39 5 text-figs.
- 189.—Jones, F. W. The status of the Dingo. *Trans. R. Soc. S. Aust. Adelaide* 55 1921 pp. 254-263.
- 190.—Jones, F. W. On the habits of *Trichosurus vulpecula*. *J. Mammal. Baltimore* 2 1921 pp. 187-193.
- 191.—Jordan, H. E. Mitochondria and Golgi apparatus of the giant-cells of red bone-marrow. *Amer. J. Anat.* 29 1921 pp. 117-137 2 plates.
- 192.—Jordan, H. E. The comparative histology of the enamel organ of the mammalian tooth, with special reference to its blood supply. *Amer. J. Anat. Philadelphia* 29 1921 pp. 379-405 3 plates.
- 193.—Kay, G. F. Significance of the relation of Proboscidean remains to the surface of Nebraskan gumbotil, near Osceola, Clark County, Iowa. *Bull. Geol. Soc. Amer. New York* 32 1921 pp. 80-83.
- 194.—Kellogg, R. A new Pinniped from the Upper Pliocene of California. *J. Mammal. Baltimore* 2 1921 pp. 212-226.
- 195.—Kershaw, P. S. On some new small mammals from East Africa. *Ann. Mag. Nat. Hist. London* (9) 8 1921 pp. 563-569.
- 196.—Kershaw, P. S. On the Collection of South African mammals in the Durban museum. *Ann. Mus. Durban* 3 1921 pp. 27-38.
- 197.—Kiebel, F. Über die Grenze zwischen mütterlichem und fetalem Gewebe. *Anat. Anz. Jena* 48 1915 pp. 255-260.
- 198.—Kloss, C. B. Malaysian Bearded Pigs. *J. Straits Asiat. Soc. Singapore* 83 1921 pp. 147-150.
- 199.—Kloss, C. B. A new squirrel from North Sarawak. *J. Straits Asiat. Soc. Singapore* 83 1921 pp. 151-152.
- 200.—Koch, R. Rickemitt Perückenge-weihe. *Jahresber. Prov.-Ver. Wiss. Münster* 45 1917 p. 80.
- 201.—Kolmer, W. Zur Histologie der Parathyreoiden und Thyreoiden. *Anat. Anz. Jena* 50 1917 pp. 271-277.
- 202.—Kolmer, W. Über das Vorkommen stäbchenförmiger Centralkörper bei Primaten. *Anat. Anz. Jena* 50 1917 pp. 309-312.
- 203.—Kolmer, W. Über die Tastorgane von *Elephas indicus*. *Anat. Anz. Jena* 54 1921 pp. 73-77.
- 204.—Kowarzik, R. Über den Musculus triceps brachii bei den Haussäufern. *Anat. Anz. Jena* 49 1916 pp. 253-255.
- 205.—Kraglievich, L. Notas Paleontológicas. Examen critico de un trabajo del Señor Alcides Mercerat. *An. Soc. Cient. Argent. Buenos Aires* 83 1917 pp. 262-279.
- 206.—Kraglievich, L. Estudios sobre los Mylodontinae. Descripción comparativa del género "*Pleurolestodon*". *Rev. An. Mus. Nac. Hist. Nat. Buenos Aires* 31 1921 pp. 95-118.
- 207.—Kraglievich, L. Estudios sobre los Mylodontinae. Descripción del cráneo y mandíbula del *Pseudolestodon myloides gallenii* n.sbsp. *An. Mus. Nac. Hist. Nat. Buenos Aires* 31 1921 pp. 119-134.
- Kraglievich, L. *vide* Ameghino, C.
- 208.—Krasa, F. C. Zur Anatomie der Arterien des Fusses bei den Sohlengängern. *Anat. Anz. Jena* 50 1917 pp. 252-256.
- 209.—Krausse, A. Über einige einheimische Mäuse und einige bei Mäusen gefundene Milben. *Arch. Natg. Berlin* 82 Abt. A. Hft. 12 1918 pp. 159-162.
- 210.—Krausse, A. Eine neue Maus von Sardinien: *Mus spicilegus* nov. subsp. *caoccii* m. *Arch. Natg. Berlin* Abt. A. 85 Hft. 7 1920 pp. 95-96.

- 211.—Krausse, A. Über die Zwergmäuse. Arch. Natg. Berlin Abt. A. 85 Hft. 7 1920 pp. 96–99 1 fig.
- 212.—Krausse, A. Über einige ausländische Haus- und Waldmäuse. Arch. Natg. Berlin 87 Abt. A. Hft. 6 1921 pp. 40–42.
- 213.—Krediet, G. Ovariotestis bei der Ziege. Biol. Centralbl. Leipzig 41 1921 pp. 447–455.
- 214.—Krieg, H. Über die Bildung von Streifenzeichnungen bei Säugetieren. Anat. Anz. Jena 54 1921 pp. 33–40.
- 215.—Krieg, H. Untersuchungen über das Zustandekommen der Fellzeichnung bei den Säugetieren insbesondere der Streifung. Verh. Anat. Ges. Jena 54 1921 pp. 104–106.
- 216.—Krieg, H. Über Pigmentzentren bei Säugetieren. Anat. Anz. Jena 54 1921 pp. 353–365.
- 217.—Kropotkin, Prince. The Direct Action of environment and evolution. Smithsonian Rep. 1918 1920 pp. 409–427.
- 218.—Kühnemann, A. Über *Bos taurus longifrons* Owen nach einigen noch nicht beschriebenen Knochenfunden der Sammlung der landwirtschaftlichen Hochschule zu Berlin. Arch. Natg. Berlin 85 Abt. A. Hft. 7 1920 pp. 59–81 5 figs.
- 219.—Kuroda, N. On three new Mammals from Japan. J. Mammal. Baltimore 2 1921 pp. 208–209.
- 220.—Latta, J. S. The histogenesis of dense lymphatic tissue of the intestine (*Lepus*): a contribution to the knowledge of the development of lymphatic tissue and blood-cell formation. Amer. J. Anat. Philadelphia 29 1921 pp. 159–211 4 plates.
- 221.—Lavauden, L. La chasse et la faune cynégétique en Tunisie. Tunis Direction Générale de l'Agric. du Commerce et de la Colonisation 1920 pp. 1–40.
- 222.—Lebedkin, S. Zur Frage der Entwicklung des Primordialcraniums beim Schwein (*Sus scrofa*). Anat. Anz. Jena 50 1918 pp. 539–546.
- 223.—Leche, W. Morphologisch-geographische Formenreihen bei den Säugetieren. Lunds Univ. Årsskr. N. F. Ård. 2 16 No. 10 1921 pp. 1–76 11 text-figs.
- 224.—Leighton, M. M. The Pleistocene succession near Alton, Illinois, and the age of the Mammalian Fossil Faunae. Journ. Geol. Chicago Ill. 29 1921 pp. 505–514.
- 225.—Levi, G. Sul modo de formazione della cavità amniotica nei Chiroterri. Mon. zool. Firenze 32 1921 pp. 49–66.
- 226.—Lichal, F. Beiträge zur Anatomie und Histologie des Tränen- nasenganges einiger Haussäugetier. Anat. Anz. Jena 48 1915 pp. 296–303 341–352.
- 227.—Licursi, A. Relación de peso entre los Mesos de los miembros articulados. Prim. Réun. Nac. Soc. Arg. Cienc. Nat. Buenos Aires 1919 pp. 440–442 1 fig.
- 228.—Loewenthal, N. Weitere Beobachtungen über die Entwicklung der Augenhöhlendrösen. Anat. Anz. Jena. 49 1916 pp. 13–23.
- 229.—Longman, H. A. A new *Nyctimene* from South Queensland. Mem. Queensland Mus. Brisbane 7 1921 pp. 179–181 pl.
- 230.—Lönnberg, E. A second contribution to the mammalogy of Ecuador with some remarks on *Caenolestes*. Ark. Zool. Stockholm 14 No. 4 1921 pp. 1–104 1 pl. 8 textfigs.
- 231.—Lönnberg, E. Några ord om Kongos markattor. Fauna och Flora Uppsala 16 1921 pp. 22–32 col. pl.
- 232.—Lönnberg, E. Några intressanta gnagare från Ecuador. Fauna och Flora Uppsala 16 1921 pp. 145–154 textfigs.
- 233.—Lönnberg, E. En manlös zebra. Fauna och Flora Uppsala 16 1921 pp. 175–181 text figs.
- 234.—Lönnberg, E. Några ord om Kamerunbergets däggdjur. Fauna och Flora Uppsala 16 1921 pp. 227–237.
- 235.—Loring, J. A. Notes on the European Hedgehog. J. Mammal. Baltimore 2 1921 pp. 110–111.
- 236.—Lull, R. S. Fauna of the Dallas Sand Pits. Amer. J. Sci. New Haven Conn. [5] 2 1921 pp. 159–176.

- 237.—Luna, E. Le curvature dell' asse encefalico negli embrioni dei Chiroteri. *Mon. Zool. Firenze* 32 1921 pp. 12-19.
- 238.—Luna, E. Lo sviluppo dei centri nervosi in *Rhinolophus hipposideros* (Chiroptera). *Mon. Zool. Firenze* 32 1921 pp. 25-30.
- 239.—Lynes, H. Notes on the Natural History of Jebel Marra. Sudan Notes and Rec. Khartoum 4 1921 pp. 119-137.
- 240.—Magnus, R. and Kleyn, A. de. On optic "stellreflexe" in the Dog and Cat. *Proc. K. Akad. Wet. Amsterdam* 22 1920 pp. 948-953.
- 241.—Mailliard, J. A handy collecting case. *J. Mammal. Baltimore* 2 1921 pp. 174-176.
- 242.—Marcus, H. Über die Zahl und die Verschiebung von Zähnen besonders bei *Manatus*. *Arch. Ent. Mech. Leipzig* 47 1921 pp. 571-586 2 pls. 3 text-figs.
- 243.—Martino, V. and E. Note on a new Snow-Vole from Montenegro (*Microtus (Chionomys) bogdanovi*, sp. n.). *Ann. Mag. Nat. Hist. London* [9] 9 p. 413.
- 244.—Mathes, E. Eine bemerkenswerte Eigentümlichkeit am Meckel'schen Knorpel eines Säugetieres: Zusammensetzung des Meckel'schen Knorpels bei *Halicore dugong* aus zwei hintereinander liegenden Teilstücken. *Anat. Anz. Jena* 54 1921 pp. 209-229.
- 245.—Matthew, W. D. Fossil vertebrates and the Cretaceous-Tertiary Problems. *Amer. J. Sci. New Haven Conn.* [6] 2 1921 pp. 209-227.
- 246.—McCollum, E. V. and Parsons, H. T. The antiscorbutic requirement of the Prairie-dog. *J. Biol. Chem. New York* 44 1920 pp. 603-607 2 pls.
- Mendel, L. B. *vide* Mitchell, H. S.
- 247.—Mercerat, A. Notas sobre algunas carnívoros fósiles y actuales de la America del Sud. Buenos Aires 1917 (R. Herrando & Co.) [Not seen.]
- 248.—Merriam, J. C. Tertiary Mammalian Faunas of the Mohave Desert. *Bull. Dept. Geol. Univ. Cal. Pub. Berkeley* 11 1919 pp. 437a-437e 438-585 253 figs.
- 249.—Michl, E. Beitrag zur Entwicklungsgeschichte von *Bos taurus* L. *Anat. Anz. Jena* 53 1920 pp. 193-215.
- 250.—Mijsberg, W. A. Die Homologie der Brust und Bauchmuskeln der Primaten. *Anat. Anz. Jena* 50 1917 pp. 121-127.
- 251.—Mijsberg, W. A. Die vermeintliche Homologie des Foramen sacrale superius (Var.) des Menschen mit der sakralen Arkade der Monotremen. *Anat. Anz. Jena* 50 1917 pp. 441-452.
- 252.—Miller, G. S. and Hollister, N. Descriptions of sixteen new murine rodents from Celebes. *Proc. Biol. Soc. Washington* 34 1921 pp. 67-76.
- 253.—Miller, G. S. and Hollister, N. Twenty new mammals collected by H. C. Raven in Celebes. *Proc. Biol. Soc. Washington* 34 1921 pp. 93-104.
- 254.—Miller, L. The Coat Color of Moles. *J. Mammal. Baltimore* 2 1921 pp. 163-166.
- 255.—Mitchell, H. S. and Mendel, L. B. Studies in Nutrition. The choice between adequate and inadequate diet, as made by rats and mice. *Amer. J. Physiol. Baltimore* 58 1921 p. 211-225 24 charts.
- 256.—Mohr, E. Das Nasenfeld der Hirsche als Hilfsmittel bei der systematischen Bestimmung. *Arch. Natg. Berlin Abt. A.* 83 Hft. 10 1919 pp. 125-128 1 pl.
- 257.—Mohr, E. Biologie und Systematik der Sechsender-Hirsche. Gattung *Rusa*. *Arch. Natg. Berlin Abt. A.* 84 9 Hft. 1920 pp. 106-143 1 pl. 11 text-figs. 1 map.
- 258.—Mohr, E. Die geographische Verbreitung der Anoa-Arten auf Celebes. *Arch. Natg. Berlin Abt. A.* 87 Hft. 6 1921 pp. 208-214 2 figs.
- 259.—Moulton, J. C. Occurrence of the Malayan Badger or Teledu in Borneo. *J. Straits Asiat. Soc. Singapore* 83 1921 pp. 142-146.
- 260.—Mouquet, A. Influence de l'alimentation sur le poids des cornes des Cervidés. *Bul. Museum Paris* 1921 pp. 31-37.

261.—Müller, H. C. Zur Entwicklungsgeschichte von *Phocaena communis* Less. Arch. Natg. Berlin Abt. A. 86 Hft. 7 1921 pp. 1–113 10 pls. 25 text-figs.

262.—Mutel, M. Les aspects particuliers de l'architecture du corps vertébral chez les mammifères, bipèdes ou quadrupèdes et chez les mammifères pisciformes. C.R. soc. biol. Paris 85 1921 pp. 521–523.

263.—Myers, R. G. A chemical study of whale blood. J. Biol. Chem. New York 41 1920 pp. 138–143.

264.—Nasonov, N. V. [Насонова, Н. В.] О „Перверзии“ въ рогахъ дикихъ барановъ. *Ovis vignei* Blyth, *gmelini* Blyth и *urmiensis* (Guenther). [Sur la „perversion“ des cornes des moutons sauvages.] Bul. Acad. Sci. Petrograd 1919 1921 pp. 1215–1246 figs.

265.—Némai, J. Das Stimmorgan der Primaten. Anat. Hefte Wiesbaden Abth. 59 1921 pp. 257–292 8 figs.

266.—Neuville, H. Sur certaines dispositions valvulaires des veinules sub-hépatiques. Bul. Muséum Paris 1921 1921 pp. 137–140.

267.—Neuville, H. Sur l'appareil respiratoire des Cétacés. Bul. Muséum Paris 1921 1921 pp. 209–215.

268.—Neuville, H. On the extinction of the Mammoth. Smithsonian Rep. Washington 1919 1921 pp. 327–338 pls. i–iii.

Neuville, H. vide Retterer, E.

269.—Niedoba, T. Untersuchungen über die Haarrichtung der Haussäugetiere. Anat. Anz. Jena 50 1917 pp. 178–192 204–216.

270.—Nishi, S. Ein Beitrag zur Anatomie des Muskelsystems der Monotremen. Vergleichende anatomie der Mm. costonuchalis, dorso-nuchalis und dorso-facialis. (Mm. trapezii dorso-cutanei). Arb. Anat. Inst. Univ. Sendai Heft 6 1921 pp. 1–6.

271.—Ognev, S. J. [Огневъ, С. П.] Материалы для систематики насекомоядныхъ млекопитающихъ Россіи. [Contribution à la classification des mammifères insectivores de la Russie.] Ann. Mus. Zool. Petrograd 1921 pp. 311–350.

272.—Ogushi, K. Beiträge zur vergleichenden Anatomie der Mm. serrati posteriores bei Affen, nebst einer Bemerkung über die „Oligoneurie.“ Anat. Anz. Jena 53 1920 pp. 321–332.

273.—Ohngren, S. Über die sogenannten Episternalbildungen bei den Säugetieren. Anat. Anz. Jena 52 1919 pp. 161–187.

274.—Oort, H. Über die Verästlung des Nervus octavus bei Säugetieren. (Modell des Utriculus und Sacculus des Kaninchens). Anat. Anz. Jena 51 1918 pp. 272–280.

275.—Osborn, H. F. Resemblances and contrasts between zoologic and palaeontologic research in mammalogy. Desirability of uniform standards and systems in classification, in description, in measurement, in reasoning. J. Mammal. Baltimore 2 1921 pp. 1–11.

276.—Osborn, H. F. Adaptive radiation and classification of the Proboscidea. Proc. Nat. Acad. Sci. Washington 7 1921 pp. 231–234.

277.—Osborn, H. F. Heads of African Elephants. Nat. Hist. New York 21 1921 pp. 244–245.

278.—Osborn, H. F. The Evolution, Phylogeny, and Classification of the Proboscidea. Amer. Mus. Novit. New York No. 1 1921 pp. 1–15.

279.—Osgood, W. H. A monographic study of the American Marsupial *Caenolestes*. Field Mus. Publ. Zool. Ser. Chicago 14 1921 pp. 1–156 pls. i–xx.

280.—Osgood, W. H. Notes on nomenclature of South American Mammals. J. Mammal. Baltimore 2 1921 pp. 39–40.

281.—Oudemans, A. C. Die Langarmigkeit der Anthropomorphen und die Geradbeinigkeit der Menschen. Arch. Natg. Berlin Abt. A. 86 Hft. 9 1921 pp. 11–14.

282.—Oudemans, A. C. Ein Pferd mit 8 incisivi. Arch. Natg. Berlin Abt. A. 86 Hft. 9 1921 p. 21.

283.—Palmgren, A. Embryological and morphological studies on the mid-brain and cerebellum of vertebrates. Acta Zool. Stockholm 2 1921 pp. 1–94.

Parsons, H. T. *vide* McCollum, E. V.

284.—Paschkis, K. Über das Fehlen von Papillae vallatae in der Zunge von *Hippopotamus amphibius*. Anat. Anz. Jena 51 1918 pp. 446–454.

285.—Pax, F. Die Verbeitung des Siebenschläfers in Schlesien. Arch. Natg. Berlin Abt. A. 84 Hft. 10 1920 pp. 156–161 1 fig.

286.—Pearson, K. and Davin, A. G. On the sesamoids of the knee-joint. Biometrika Cambridge 13 1921 pp. 133–172 18 plates; pp. 350–394 19 plates and chart.

287.—Péringuey, L. A note on the whales frequenting South African Waters. Trans. Roy. Soc. S. Afric. 9 1921 pp. 73–76 pl. i.

288.—Peyer, B. Zum "Problem, der Entstehung der Zahnform." Anat. Anz. Jena 53 1920 pp. 107–111.

289.—Pfizenmayer, E. W. Bastardierungen von Cavicorniern in Transkaukasien. SitzBer. Ges. natf. Freunde Berlin 1920 1920 pp. 154–167 3 pls.

290.—Pictet, A. and Ferrers, Mdle. Recherches de génétique dans des croisements de Cobayes. C. R. Soc. Phys. Hist. Nat. Genève 38 1921 1re partie pp. 32–37 2me partie pp. 56–60 3me partie pp. 97–100.

291.—Pieragnoli, L. Ossa patologiche nella grotta di Equi in Lunigiana. Palaeontogr. Italica Pisa 25 1919 pp. 1–35 7 pls.

292.—Ping, C. On the growth of the largest nerve cells in the superior cervical sympathetic ganglion of the Norway rat. J. Comp. Neur. Philadelphia 33 1921 pp. 313–338 5 charts.

293.—Ping, C. On the growth of the largest nerve cells in the superior cervical sympathetic ganglion of the albino rat—from birth to maturity. J. Comp. Neur. Philadelphia 33 1921 pp. 281–311 7 figs.

294.—Pocock, R. I. The systematic value of the glans penis in Macaque Monkeys. Ann. Mag. Nat. Hist. London (9) 7 1921 pp. 224–229.

295.—Pocock, R. I. A new species of *Bassaricyon*. Ann. Mag. Nat. Hist. London (9) 7 1921 pp. 229–234.

296.—Pocock, R. I. The external Characters and Classification of the *Procyonidae*. Proc. Zool. Soc. London 1921 1921 pp. 389–422 text-figs 1–13.

297.—Pocock, R. I. The auditory bulla and other cranial characters in the Mustelidae. Proc. Zool. Soc. London 1921 1921 pp. 472–486 text-figs. 14–18.

298.—Pocock, R. I. On the external characters of some species of Lutrinae (Otters). Proc. Zool. Soc. London 1921 1921 pp. 535–546 text-figs 19–21.

299.—Pocock, R. I. The external characters of the Koala (*Phascogale*) and some related Marsupials. Proc. Zool. Soc. London 1921 1921 pp. 591–607 text-figs. 22–26.

300.—Pohle, H. Ueber den physiologischen Zahnausfall. SitzBer. Ges. natf. Freunde Berlin 1921 1921 pp. 115–122.

301.—Portis, A. Elenco delle specie di cervicorni fossili in Roma e attorno a Roma. Boll. Soc. Geol. Ital. Rome 39 1920 pp. 132–139.

302.—Prinzhorn, F. Die Haut und die Rückbildung der Haare beim Nackthunde (Fauna et Anatomia ceylanica, No. 6). Jenaische Zs. Natw. 57 1921 pp. 143–198.

303.—Przibam, H. Temperatur-unabhängigkeit der weiblichen Periode und Gravidität bei Ratten, *Mus decumanus* und *Mus rattus* (die Umwelt des Keimplasmus vii). Anz. Akad. Wiss. Wien. 56 1919 pp. 251.

304.—Raw, F. A Mammoth Molar from North Woodchester, near Stroud. Geol. Mag. London 58 1921 pp. 502–505 1 plate.

305.—Reichel, H. Die Saisonfunktion des Nebenhodens vom Maulwurf. Anat. Anz. Jena 54 1921 pp. 129–149.

306.—Reisinger, L. Die spezifischen Drüsen den Bisamratte. Anat. Anz. Jena 49 1916 pp. 321–328.

307.—Remane, A. Zur Beurteilung der fossilen Anthropoiden. Centralbl. Min. Stuttgart 1921 pp. 335–339.

308.—Remane, A. Beiträge zur Morphologie des Anthropoidengebisses. Arch. Natg. Berlin Abt. A. 87 Hft. 11 1921 pp. 1–179 31 figs.

309.—Repelin, J. Aperçu sur la succession des faunes de Mammifères tertiaires dans le Sud-Ouest de la France. *Compte-Rendu soc. géol. France Paris* 1918 pp. 65-68.

310.—Repelin, J. Répartition stratigraphique des faunes de Mammifères oligocènes dans le bassin de l'Aquitaine. *Compte-Rendu soc. géol. France Paris* 1918 pp. 73-75.

311.—Repelin, J. Observations à propos d'une note posthume de Vasseur: "Découverte de restes d'*Anthracotheurium* dans les formations sannoisiennes du bassin d'Aix-en-Provence." *Compte-Rendu soc. géol. France Paris* 1917 pp. 27-29.

312.—Retterer, E. et Neuville, H. Des ganglions lymphatiques du Dauphin. *C.R. soc. biol. Paris* 85 pp. 328-331.

313.—Retterer, E. et Voronoff, S. Du placenta de la Chèvre. *C.R. soc. biol. Paris* 84 1921 pp. 296-298.

314.—Richarz, S. Neue Wirbeltierfunde in den Tonen von Tegelen bei Venlo. *Centralbl. Min. Stuttgart* 1921 pp. 664-669.

315.—Riley, S. Some observations on Beaver Culture with reference to the National Forests. *J. Mammal. Baltimore* 2 1921 pp. 197-206.

316.—Ritchie, J. The Walrus in British waters. *Scot. Nat. Edinburgh* 1921 1921 pp. 5-9 77-86.

317.—Robinson, H. C. Two new Indo-Malayan Rats. *Ann. Mag. Nat. Hist. London* (9) 7 1921 pp. 234-236.

Robinson, H. C. *vide* Thomas, O.

318.—Rojas, P. Anatomie de la branche gauche du système de conduction du cœur chez la Boeuf. *C.R. soc. biol. Paris* 84 1921 pp. 167-168.

319.—Roman, F. Sur quelques restes de Mammifères terrestres dans les aigles aquitaniennes marines de Fontcaude près Montpellier. *Compte-Rendu soc. géol. France Paris* 1919 pp. 44.

320.—Ruge, G. Rückwirkungen des frei beweglichen Zustandes der oberen Gliedmassen auf Organe des Rumpfes. *Anat. Anz. Jena* 51 1918 pp. 81-196.

321.—Salazar, A.-L. Sur l'évolution de l'ovaire adulte de la Lapine. *C.R. soc. biol. Paris* 85 1921 pp. 783-784.

322.—Sand, K. Etudes expérimentales sur les glandes sexuelles chez les mammifères. *J. Physiol. Path. gén. Paris* 19 1921 pp. 305-322 11 figs.

323.—Sansom, G. S. Parthenogenesis in the Water Vole, *Microtus amphibius*. *J. Anat. London* 55 1920 pp. 68-77.

324.—Schauder, W. Über den intraabdominalen Abschnitt der Vasa omphalomesenterica des Pferdes. *Anat. Anz. Jena* 50 1917 pp. 289-302.

325.—Schauder, W. Morphologie der embryonalen Ernährung bei den Haushuftieren. *Arch. Tierheilk. Berlin* 46 1921 pp. 187-206.

326.—Schauder, W. Anatomische und metrische Untersuchungen über die Muskeln der Schultergliedmasse des Pferdes (Vorläufige Mitteilung). *Arch. Tierheilk. Berlin* 47 1921 pp. 237-248.

327.—Schiller, A. Das Relief der Agmina Peyer bei *Tapirus americanus*. *Anat. Anz. Jena* 48 1915 pp. 54-59.

328.—Schlesinger, G. Die planifrons-molaren von Dobermannsdorf und Laaerberg in Niederösterreich (Eine Erwiderung an Herrn W. Soergel). *Palaeont. Zs. Berlin* 2 1918 pp. 215-224.

329.—Schlosser, M. Beiträge zur Kenntnis der Säugetierreste aus dem untersten Eocaen von Reims. *Palaeontographica Stuttgart* 63 1921 pp. 97-147 2 plates 1 text-fig.

330.—Schlosser, M. Neuere Funde von Wirbeltieren, besonders Säugetieren im Tertiär und Pleistocän der Iberischen Halbinsel. *Centralbl. Min. Stuttgart* 1921 pp. 436-444 471-479 490-501.

331.—Schmitsdorf, F. Die Oberlippe von *Trichechus (Rosmarus) rosmarus* L. Ein Beitrag zur Anatomie der Sinushaare. *Arch. Natg. Berlin Abt. A.* 82 Hft. 3 1917 pp. 54-101 3 pls. 4 text-figs.

332.—Schreiber, J. Über den Einfluss der Kastration auf den Larynx der grossen Haussäugetiere. *Anat. Anz. Jena* 49 1916 pp. 129-151.

333.—Schréter, Z. Vorkommen von Mammutknochen im Kom. Pest, in Gomba und in Monor. Földt. Közlöny Budapest 47 1917 pp. 173-4 1 fig.

334.—Schréter, Z. Diluviale Knochen von Mammalia. Földt. Közlöny Budapest 47 1917 pp. 174-5 1 fig.

335.—Schréter, Z. Mediterranes *Metaxytherium* Skelett v. Marcyfalva. Földt. Közlöny Budapest 47 1917 pp. 176-7.

336.—Schulthess, B. Beiträge zur Kenntnis der *Xenarthra* auf Grund der "Santiago Roth'schen Sammlung" des Zoologischen Museums der Universität Zurich. 1. Katalog der "S. Roth'schen Sammlung" fossiler Säugetiere der Pampasformation. 2. Das Skelett der Hand und des Fusses der *Xenarthra*. Abh. Schweiz. Pal. Ges. (Mém. soc. pal. Suisse, Genève) 44 1920 pp. 4-119 6 pls. 55 text-figs.

337.—Schultz, A. H. The Occurrence of a Sternal Gland in Orang-Utan. J. Mammal. Baltimore 2 1921 pp. 194-196.

338.—Schumacher, S. von. Über eigentümliche Verhältnisse an den Venen der Ohrmuschel eines neugeborenen Nilpferdes. Anat. Anz. Jena 49 1916 pp. 72-81.

339.—Schumacher, S. von. Eine "Pigmentdrüse" in der Nasenhaut des Hasen. Anat. Anz. Jena 50 1917 pp. 161-171.

340.—Schumacher, S. von. Über das Vorkommen von Schuppen an den Ohrmuscheln des Alpenschneehasen (*Lepus varronis*, Mill.). Anat. Anz. Jena 50 1918 pp. 473-480.

341.—Schumacher, S. von. Bau der äusseren Haut eines Fetus von *Hippopotamus amphibius*. Anat. Anz. Jena 51 1918 pp. 165-173.

342.—Schumacher, S. von. Über eine fetale Fellzeichnung beim Feldhasen. Anat. Anz. Jena 52 1919 pp. 90-95.

343.—Schumacher, S. von. Weitere Bemerkungen über die "Pigmentdrüse". Anat. Anz. Jena 54 1921 pp. 241-248.

344.—Schwercz, F. Tierreste aus la Tène. Anat. Anz. Jena 50 1918 pp. 457-472.

345.—Sera, G. L. La omologia del lacrimale dei primati. Riv. Ital. Paleont. Parma 27 1921 pp. 45-49 1 fig.

346.—Shaw, W. T. The nest of the Washington Weasel (*Mustela washingtoni*). J. Mammal. Baltimore 2 1921 pp. 167-168.

347.—Skoda, K. Untersuchungen über das Vorkommen eines Uterus masculinus bei einigen Wiederkäuern (*Bostaurus*, *Bos bubalus* und *Ovis aries*). Anat. Anz. Jena 50 1917 pp. 111-120.

348.—Skoda, K. Eine seltene Anomalie: Verdoppelung eines Darmabschnittes bei einem Rind. Anat. Anz. Jena 50 1917 pp. 146-154.

349.—Smith, G. E. On Examples of *Tarsius* from Sarawak. Proc. Zool. Soc. London 1921 1921 pp. 184-186.

350.—Soergel, W. Das vermeintliche Vorkommen von *Elephas planifrons* Falc. in Niederösterreich. Palaeont. Zs. Berlin 2 1918 pp. 1-65 12 figs.

351.—Soergel, W. Der Steppeniltis, *Foetorius eversmanni* Less. aus dem oberen Travertin des Travertingebietes von Weimar. Zs. d. geol. Ges. Berlin B 69 1918 pp. 139-181 1 plate 1 text-fig.

352.—Soergel, W. Der Siebenschläfer aus den Kiesen von Süssenborn bei Wiemar. Zs. d. geol. Ges. Berlin A. 71 1919 pp. 59-79 1 plate 1 text-fig.

353.—Soergel, W. *Elephas columbi* Falconer: ein Beitrag zur Stammesgeschichte der Elefanten und zum Entwicklungsmechanismus des Elefantengebisses. Geol. palaeont. Abh. Jena N.F. 14 (18) 1921 pp. 3-99, 8 pls. 15 text-figs.

354.—Sonntag, C. F. The Comparative Anatomy of the Tongues of the Mammalia. II. Family I. Simiidae. Proc. Zool. Soc. London 1921 1921 pp. 1-29 text-figs 1-9.

355.—Sonntag, C. F. A Contribution to the Anatomy of the Three-toed Sloth (*Bradypus tridactylus*). Proc. Zool. Soc. London 1921 1921 pp. 157-177 pls. i-iv text-figs. 10-15.

- 356.—Sonntag, C. F. The Comparative Anatomy of the Tongues of the Mammalia. III. Family 2. Cercopithecidae; with notes on the comparative physiology of the tongues and stomachs of the Langurs. Proc. Zool. Soc. London 1921 1921 pp. 277-322 text-figs 16-36.
- 357.—Sonntag, C. F. The Comparative Anatomy of the Tongues of the Mammalia. IV. Families 3 and 4 Cebidae and Hapalidae. Proc. Zool. Soc. London 1921 1921 pp. 497-524 text-figs 37-52.
- 358.—Sonntag, C. F. The Comparative Anatomy of the Koala (*Phascolarctos cinereus*) and Vulpine Phalanger (*Trichosurus vulpecula*). Proc. Zool. Soc. London 1921 1921 pp. 547-577 pls. v vi text-figs 53-63.
- 359.—Sonntag, C. F. On some abnormalities in the Carnivora. Proc. Zool. Soc. London 1921 1921 pp. 587-590 text-figs 64-65.
- 360.—Soper, J. D. Notes on the Snowshoe Rabbit. J. Mammal. Baltimore 2 1921 pp. 101-108.
- 361.—Sowerby, A. de C. Notes on the East Asiatic Members of the Species *Sciurus vulgaris*, Linn, with descriptions of two new Sub-species. Ann. Mag. Nat. Hist. London (9) 7 1921 pp. 249-254.
- 362.—Spiegel, E. A. Das Ganglion psalterii. Anat. Anz. Jena 51 1918 pp. 454-462.
- 363.—Stehlin, H. G. Le *Pernatherium rugosum* Gervais. Bull. soc. géol. Paris 18 1918 pp. 123-128.
- 364.—Stein, M. und Hermann, E. Über künstliche Entwicklungshemmung männlicher sekundärer Geschlechtsmerkmale. Arch. Entw. Mech. Leipzig 48 1921 pp. 447-488 1 plate 10 text-figs.
- 365.—Steinitz, W. Untersuchungen über die Entwicklung des Auges vom Buckelwal (*Megaptera nodosa*). Jenaische Zs. Natw. 56 1920 pp. 119-154.
- 366.—St. John, H. A tree-climbing Woodchuck. J. Mammal. Baltimore 2 1921 p. 207.
- 367.—Stock, C. The Pleistocene Fauna of Hawver Cave. Univ. Cal. Pub. Geol. Berkeley 10 1918 pp. 461-515 32 figs.
- 368.—Stock, C. Later Cenozoic Mammalian remains from the Meadow Valley Region, Southeastern Nevada. Amer. J. Sci. New Haven Conn. (5) 2 1921 pp. 250-264.
- 369.—St. Quintin, W. H. Pine Marten in East Yorkshire. Naturalist London 1921 1921 pp. 3-4.
- 370.—Strahl, H. Ein Corpus cavernosum uteri. Anat. Anz. Jena 50 1917 pp. 65-70.
- 371.—Strandberg, A. Beitrag zur Kenntnis des Chievitz'schen Organs. Anat. Anz. Jena 51 1918 pp. 177-195.
- 372.—Studer, Th. Die Fauna der Schieferkohlen von Gondiswil-Zell. Säugetiere. Eclogæ Geol. Helvet. Lausanne 16 1920 pp. 128-129.
- 373.—Studnička, F. K. Über die Histogenese der Schmelzschicht der Säugertierzähne. Anat. Anz. Jena 50 1917 pp. 225-243.
- 374.—Stuurman, F. J. Der Hypoglossuskern der Ameisenfresser. Anat. Anz. Jena 49 1916 pp. 342-348.
- 375.—Sumner, F. B. Desert and Lava-dwelling mice and the problem of protective coloration in mammals. J. Mammal. Baltimore 2 1921 pp. 75-86.
- 376.—Swarth, H. S. The Red Squirrel of the Sitkan District, Alaska. J. Mammal. Baltimore 2 1921 pp. 92-94.
- 377.—Tanton, T. L. Depressions found on Moose trails and their significance. Journ. Mamm. Baltimore 1 1920 pp. 142-143.
- 378.—Taylor, W. P. *Thomomys douglasii shawi*, a new subspecies of Pocket Gopher from Mount Rainier, Washington. Proc. Biol. Soc. Washington 34 1921 pp. 121-122.
- 379.—Thiel, G. A. and Douney, H. The development of the mammalian spleen, with special reference to its hematopoietic activity. Amer. J. Anat. Philadelphia 28 1921 pp. 279-339 3 text-figs 3 plates.

- 380.—Thomas, O. On small Mammals from "Otro Cerro" North-eastern Rioja. Collected by Sr. L. Budin. Ann. Mag. Nat. Hist. London [9] 3 1919 pp. 489-500.
- 381.—Thomas, O. A new Tuco-tuco from Bolivia. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 136-137.
- 382.—Thomas, O. Two new Muridae discovered in Paraguay by the Marquis de Wavrin. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 177-179.
- 383.—Thomas, O. A new Mountain Vizcacha (*Lagidium*) from N.W. Patagonia. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 179-181.
- 384.—Thomas, O. A new Monkey and a new Squirrel from the Middle Mekong, on the Eastern Frontier of Siam. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 181-183.
- 385.—Thomas, O. New *Rhipidomys*, *Akodon*, *Ctenomys* and *Marmosa* from the Sierra Santa Barbara, S.E. Jujuy. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 183-187.
- 386.—Thomas, O. On a new Genus and Species of Shrew and some new Muridae from the East Indian Archipelago. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 243-249.
- 387.—Thomas, O. New Foxes of the Genera *Cerdocyon* and *Pseudalopex* from Northern Argentina. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 381-385.
- 388.—Thomas, O. On Cavies of the Genus *Caviella*. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 445-448.
- 389.—Thomas, O. New *Sigmodon*, *Oryzomys*, and *Echimys* from Ecuador. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 448-450.
- 390.—Thomas, O. Three new Species of *Marmosa* with a Note on *Didelphys waterhousei* Tomes. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 519-523.
- 391.—Thomas, O. The Tuco-tuco of San Juan, Argentina. Ann. Mag. Nat. Hist. London [9] 7 1921 pp. 523-524.
- 392.—Thomas, O. The *Arctonyx* of Annam. Ann. Mag. Nat. Hist. London [9] 7 1921 p. 524.
- 393.—Thomas, O. The Geographical Races of *Herpestes brachyurus*, Gray. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 134-136.
- 394.—Thomas, O. A new Genus of Opossum from Southern Patagonia. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 136-139.
- 395.—Thomas, O. A new Bat of the Genus *Promops* from Peru. Ann. Mag. Nat. Hist. London [9] 8 1921 p. 139.
- 396.—Thomas, O. On Spiny Rats of the *Proechimys* Group from South-eastern Brazil. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 140-143.
- 397.—Thomas, O. The "Huron" of the Argentine. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 212-213.
- 398.—Thomas, O. On Mammals from the Province of San Juan, Western Argentina. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 214-221.
- 399.—Thomas, O. Two new Argentine forms of Skunk. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 221-222.
- 400.—Thomas, O. New *Cryptotis*, *Thomasomys* and *Oryzomys* from Colombia. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 354-357.
- 401.—Thomas, O. New *Pseudochirus* and *Phascogale* from N.W. New Guinea. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 357-359.
- 402.—Thomas, O. Notes on Australasian Rats, with a Selection of Lectotypes of Australasian Muridae. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 425-433.
- 403.—Thomas, O. The Jerboa of Muscat. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 440-441.
- 404.—Thomas, O. A new short-tailed Opossum from Brazil. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 441-442.
- 405.—Thomas, O. A new Cotton-tail (*Sylvilagus*) from Colombia. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 442-443.
- 406.—Thomas, O. Notes on the species of *Notomys*, the Australian Jerboa-Rats. Ann. Mag. Nat. Hist. London [9] 8 1921 pp. 536-541.

- 407.—Thomas, O. A new Hedgehog from the Island of Djerba, Tunis. *Ann. Mag. Nat. Hist. London* [9] 8 1921 pp. 570.
- 408.—Thomas, O. On a further collection of mammals from Jujuy obtained by Sr. E. Budin. *Ann. Mag. Nat. Hist. London* [9] 8 1921 pp. 608–617.
- 409.—Thomas, O. The Masked Civets (*Paguma*) of Western China. *Ann. Mag. Nat. Hist. London* [9] 8 1921 pp. 617–618.
- 410.—Thomas, O. On three new Australian rats. *Ann. Mag. Nat. Hist. London* [9] 8 1921 pp. 618–622.
- 411.—Thomas, O. New *Hesperomys* and *Galea* from Bolivia. *Ann. Mag. Nat. Hist. London* [9] 8 1921 pp. 622–624.
- 412.—Thomas, O. Two new species of Slow Loris. *Ann. Mag. Nat. Hist. London* [9] 8 1921 pp. 627–628.
- 413.—Thomas, O. On a collection of rats and shrews from the Dutch East Indian Islands. Treubia, Batavia 2 1921 pp. 109–114.
- 414.—Thomas, O. On small Mammals from the Kachin Province, Northern Burma. *J. Bombay Nat. Hist. Soc.* 27 1921 pp. 499–505.
- 415.—Thomas, O. Scientific Results from the Mammal Survey, No. XXV. A. On Jungle Mice from Assam. B. The Brush-tailed Porcupine of Assam. *J. Bombay Nat. Hist. Soc.* 27 1921 pp. 596–599.
- 416.—Thomas, O. Scientific Results from the Mammal Survey, No. XXVII. The geographical races of *Scotomanes ornatus*. *J. Bombay Nat. Hist. Soc.* 27 1921 pp. 772–773.
- 417.—Thomas, O. Scientific Results from the Mammal Survey, No. XXX. The Mongoose of the *Herpestes smithii* group. *J. Bombay Nat. Hist. Soc.* 28 1921 pp. 23–26.
- 418.—Thomas, O. Scientific Results from the Mammal Survey, No. XXXI. Two new rats from Assam. *J. Bombay Nat. Hist. Soc.* 28 1921 pp. 26–27.
- 419.—Thomas, O. A new Arabian Hare. *J. Bombay Nat. Hist. Soc.* 28 1921 pp. 28–29.
- 420.—Thomas, O. and Hinton, M. A. C. Captain Angus Buchanan's Air Expedition. II. On the mammals, other than Ruminants, obtained during the expedition to Air (Asben). *Nov. Zool. Tring* 28 1921 pp. 1–13.
- 421.—Thomas, O. and Robinson, H. C. Some new insular squirrels of the *Callosciurus caniceps-concolor* Group from Peninsular Siam. *Ann. Mag. Nat. Hist. London* [9] 7 1921 pp. 118–123.
- 422.—Thorpe, M. R. A newly mounted *Eporeodon*. *Amer. J. Sci. New Haven Conn.* [5] 2 1921 pp. 309–312.
- 423.—Thorpe, M. R. A new *Merycododon*. *Amer. J. Sci. New Haven Conn.* [5] 2 1921 pp. 334–342.
- 424.—Toldt, K. Symmetrische Zeichnung der Säugetierhaut infolge des Haarkleidwechsels. *Anz. Akad. Wiss. Wien.* 56 1919 pp. 312–314.
- 425.—Toldt, K. Über die flächenhafte Verbreitung der Pigmente in der Haut bei Menschen und Affen. *Mitt. Anthropol. Ges. Wien.* 51 1921 pp. 161–183 pls. 5 text-figs. 4.
- 426.—Troxell, E. L. A study of *Diceratherium* and the *Diceratheres*. *Amer. J. Sci. New Haven Conn.* [5] 2 1921 pp. 197–208.
- 427.—Twitchell, A. H. Notes on the mammals of the Lower Yukon region. *J. Mammal. Baltimore* 2 1921 pp. 40–41.
- 428.—Ugolini, R. Il *Rhinoceros etruscus* Falc. del Pliocene di Barga. *Palaeontogr. Italica Pisa* 24 1918 pp. 121–128 1 pl.
- 429.—Ugolini, R. Sopra alcuni resti di rinoceronte del Pliocene lacustre di Pietrafratta in Prov. di Perugia. *Riv. Ital. Paleont. Parma* 27 1921 pp. 15–18.
- 430.—Vallois, H. V. La vertèbre diaphragmatique et la séparation des colonnes dorsale et lombaire chez les mammifères. *C.R. soc. biol. Paris* 85 1921 pp. 974–975.
- 431.—Van Deinse, A. B. Zur Flossenversteifung der Cetaceen. *Anat. Anz. Jena* 49 1916 pp. 521–524.

432.—Van Kampen, P. N. On the phylogeny of the hair of mammals. Proc. K. Akad. Wet. Amsterdam 22 1920 pp. 140-144.

433.—Vermeulen, H. A. Über den Nervus sympathicus der Haustiere. Anat. Anz. Jena 49 1916 pp. 301-309.

434.—Vermeulen, H. A. Einige Muskel- und Knochenvarietäten beim Pferd. Anat. Anz. Jena 49 1916 pp. 349-351.

435.—Vohries, C. T. Caesarian operation on *Lepus alleni*, and notes on the young. J. Mammal. Baltimore 2 1921 pp. 114-116.

Voronoff, S. vide Retterer, E.

436.—Wallenberg, A. Abnorme Bündel des Fornix und der Pyramidenbahn beim Meerschweinchen. Anat. Anz. Jena 48 1915 pp. 141-144.

437.—Warren, E. R. The Small Mammals of Colorado. Colorado Mountain Club Publ. No. 7 1921 pp. 1-31.

438.—Wegner, R. N. Das ligamentum sphenopetrous Gruber = Abducensbrücke und homologe Gebilde. Eine Erwiderung an Max Voit. Anat. Anz. Jena 53 1920 pp. 161-175.

439.—Werth, E. Ein spätglazialer Damhirsch von Gross-Wusterwitz. Zs. d. geol. Ges. Berlin B. 69 1918 pp. 237-239 1 text-fig.

440.—Wettengl, F. Die Untersuchung der Zungen im Lebensmittelverkehr. Arch. Tierheilk. Berlin 47 1921 pp. 62-76 19 figs.

441.—Wittmaack, K. Zur Kenntnis der Cuticulaergebilde des inneren Ohres mit besonderer Berücksichtigung der Lage der Cortischen Membran. Jenaische Zs. Natw. 55 1918 pp. 537-576.

442.—Wolf, C. G. L. The survival of motility in mammalian spermatozoa. Jr. Agric. Sci. Cambridge 11 1921 pp. 310-322.

443.—Wroughton, R. C. Scientific Results from the Mammal Survey, No. XXVIII. On the *erythraeus* group of squirrels. J. Bombay, Nat. Hist. Soc. 27 1921 pp. 773-777.

(N-17041 f) q

444.—Wroughton, R. C. Scientific Results from the Mammal Survey, No. XXIX. A renaming of "*Mungos mungo ellioti*," Wroughton. J. Bombay Nat. Hist. Soc. 28 1921 pp. 23.

Wroughton, R. C. vide Hinton, M. A. C.

445.—Zietzschmann, O. Über die Hautschwielen an den Gliedmassen von *Equus przewalskii* Pol. Anat. Anz. Jena 49 1916 pp. 385-394.

446.—Zietzschmann, O. Beiträge zum Bau und zur Entwicklung von Hautorganen bei Säugetieren. 7. Die früheste Entwicklung der Sinushaare des Schweines. Anat. Anz. Jena 52 1920 pp. 332-349.

447.—Zimmermann, K. W. Über das Epithel des glomerularen Endkammerblattes der Säugerniere. Anat. Anz. Jena 48 1915 pp. 335-341.

448.—Zimmermann, K. Ein Beitrag zur Kenntnis der kurzohrigen Erdmaus, *Microtus subterraneus* Selys. Arch. Natg. Berlin Abt. A. 86 Hft. 8 1921 pp. 84-92 2 figs.

449.—Zimmermann, R. Unsere Kenntnisse über die Verbreitung und Lebensweise der Schlafmäuse in Sachsen. Arch. Natg. Berlin Abt. A. 87 Hft. 10 1921 pp. 199-223 3 figs.

450.—Zimmermann, R. Einige Beobachtungen über die Säugetierwelt des Waldgebietes von Bialowies. Arch. Natg. Berlin Abt. A. 87 Hft. 10 1921 pp. 224-230.

451.—Zukowsky, L. Ueber *Alces pfizenmayeri* und zwei anscheinend neue Rassen des Elches. Arch. Natg. Berlin Abt. A. 80 Hft. 9 1915 pp. 33-45 1 pl.

452.—Zukowsky, L. Über zwei neue Formen von *Felis caudata* Gray. Arch. Natg. Berlin Abt. A. 80 Hft. 9 1915 pp. 93-101 1 pl.

453.—Zukowsky, L. Eine neue Rasse des Kongoni, *Bubalis cokei schulzi*. Arch. Natg. Berlin Abt. A. 80 Hft. 9 1915 pp. 101-106 1 fig.

454.—Zukowsky, L. Drei neue Katzenrassen aus Westasien. Arch. Natg. Berlin Abt. A. 80 Hft. 10 1915 pp. 124-142 1 pl.

455.—Zukowsky, L. Beschreibung des Schädels von *Connochaetes albojubatus schulzi* und kleine Beiträge über die Gattung *Connochaetes*. Arch. Natg. Berlin Abt. A. 80 Hft. 8 1915 pp. 132-141 1 pl.

456.—Zukowsky, L. Ergänzungen zu meinen Arbeiten über *Connochaetes albojubatus* Ths. und *Eudorcas thomsoni* Gthr. Arch. Natg. Berlin Abt. A. 80 Hft. 10 1915 pp. 142-146.

457.—Zukowsky, L. Beschreibung des Schädels von *Felis caudata macrothrix* Zukowsky. Arch. Natg. Berlin Abt. A. 87 Hft. 10 1921 pp. 175-183 2 figs.

458.—Zukowsky, L. Mitteilungen über eine anscheinend neue Form von *Hylochoerus* aus dem Winterhochlande, vom Mutjekgebirge und vom Meruberge. Arch. Natg. Berlin Abt. A. 87 Hft. 10 1921 pp. 183-191 1 fig.

459.—Zukowsky, L. Beitrag zur Kenntnis von *Pusa hispida pygmaea*. Arch. Natg. Berlin Abt. A. 87 Hft. 10 1921 pp. 191-199 2 figs.

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Flächenhafte Verbeitung der Pigmente in der Haut, TOLDT Mitt. Anthropol. Ges. Wien 51 p. 161; Sight and smell, ELLIOT SMITH Proc. Zool. Soc. 1921 p. 184; Stimmorgan, NEMAI Anat. Hefte Wiesbaden Abt. 1 59 p. 257; Homologie der Brust- und Bauchmuskeln, MJSBERG Anat. Anz. Jena 50 p. 121; Mm. serrati posteriores bei Affen, OGUSHI Anat. Anz. Jena 53 p. 321; Homology of lachrymal, SERA Riv. Ital. Paleont. Parma 27 p. 45; Lower jaw comparative anatomy, HOLL Anz. Akad. Wiss. Wien 56 p. 67; Vorkommen stabchenförmiger Centralkörper, KOLMER Anat. Anz. Jena 50 p. 309; Langarmigkeit und Geradbeinigkeit, OUDEMANS Arch. Natg. Berlin Abt. A. 86 p. 11; Rückwirkungen des frie beweglichen oberen Gliedmassen auf Organe des Rumpfes, RUGE Anat. Anz. Jena 51 p. 81.

A.—Anthropoidea.

Morphologie des Gebisses, REMANE Arch. Natg. Berlin 87 Abt. A. 11 p. 1; Fossil species, REMANE Centralbl. Min. Stuttgart 1921 p. 335.

HOMINIDAE AND SIMIIDAE.

Simiidae tongue, SONNTAG Proc. Zool. Soc. 1921 p. 1.

Anthropopithecus Variationen der Hirnfurchen, FISCHER Verh. Anat. Ges. Jena 54 p. 48.

Gorilla and Chimpanzee habits, ASCHMEIER J. Mammal. Baltimore 2 p. 90.

Gorilla "Bulla maxillaris," BOLK Anat. Anz. Jena 50 p. 277; osteology and osteo-malakische Erkrankung, HANKE Jenaische Zs. Natw. 55 p. 67.

Homo vermiform appendix, EGGE-LING Anat. Anz. Jena 53 p. 401.

Pithecanthropus age of deposits, HILBER Centralbl. Min. Stuttgart 1921 p. 169.

Simia satyrus sternal gland, SCHULZ J. Mammal. Baltimore 2 p. 194.

CERCOPITHECIDAE.

Tongues, SONNTAG Proc. Zool. Soc. 1921 p. 277; Congo species, LÖNNBELG Fauna och Fl. Uppsala 16 p. 22.

Hamadryas hamadryas abnormal skull, DE BEAUX Atti Soc. liguistica sc. nat. geogr. Genova 32 No. 3 p. 1.

Lyssodes Gistel (1848), genotype *speciosus*, distinct from *Macaca* by characters of glans penis, Pocock Ann. Mag. N.H. [9] 7 p. 228.

Macaca divided into three genera by characters of glans penis (see *Lyssodes* & *Zati*), Pocock Ann. Mag. N.H. (9) 7 p. 224; *mulatta* Zimm. the tenable name for the Rhesus monkey, *assamensis* McCl. the tenable name for the Assam Macaque, synonymies, characters and distribution of the two species p. 665; *pileata* Kerr (1792) not identifiable and not based upon any Indo-Cinghalese species; *sinica* Linn. (1771) the tenable name for the Toque Monkey of Ceylon; *radiata* Geoff. (1812) the tenable name for the Madras Macaque p. 815, HINTON & WROUGHTON J. Bombay N.H.S. 27.

Pithecius laotum Middle Mekong sp. n., THOMAS Ann. Mag. N.H. [9] 7 p. 181.

Zati Reichenbach (1862), genotype *sinicus*, distinct from *Macaca* by characters of glans penis, POCKOCK Ann. Mag. N.H. [9] 7 228.

HAPALIDAE AND CEBIDAE.

Tongue, SONNTAG Proc. Zool. Soc. 1921 p. 497.

Cebus nigrilus Goldfuss (1809) antecedes *cirrifer* Humboldt (1812), OSGOOD J. Mammal. Baltimore 2 p. 40.

Hapale jacchus extensor tarsi muscles, FORSTER Anat. Anz. Jena 49 p. 257.

Mytax ursulus dates from Hoffmannsegg (1807), OSGOOD J. Mammal. Baltimore 2 p. 40.

B.—Lemuroidea.

Elliot's classification, DECISI Mon. Zool. Firenze 31 p. 41.

†*Notharctus* structure and relations GREGORY Mem. Amer. Mus. Nat. Hist. N.S. 3 p. 49.

Nycticebus incanus Lower Pegu, *ornatus* W. Java, spp. n., *javanicus* Geoff. a synonym of *coucang* Bodd., THOMAS Ann. Mag. N.H. (9) 8 p. 627.

Tarsius retina and vision, photographs of living animal, ELLIOT SMITH Proc. Zool. Soc. 1921 p. 184; *fuscus dentatus*, *pumilus* subsp. et sp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Sci. Washington 34 p. 103.

II.—CHIROPTERA.

Morphologisch-geographische Formenreihen, LECHE Lunds Univ. Arsskr. N.F. Avd. 2 16 No. 10 p. 35; rôle physiologique des sécrétions utérine et tubaire chez la Chauve-Souris hibernante, COURRIER C.R. soc. biol. Paris 84 p. 572; formazione della cavità amniotica, LEVI Mon. Zool. Firenze 32 p. 49; curvatura dell' asse encefalico negli embrioni, LUNA Mon. Zool. Firenze 32 p. 12; Die Parotis, BROMAN Anat. Anz. Jena 49 p. 65.

Banding bats and habits of American species, ALLEN J. Mammal. Baltimore 2 p. 53.

PTEROPODIDAE.

Harpyionycteris celebensis sp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc., Washington 34 p. 99.

Nyctimene tryoni sp. n. South Queensland, LONGMAN Mem. Queensland Mus. Brisbane 7 p. 179.

Pteropus arquatus sp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc., Washington 34 p. 100; *daitoensis* sp. n. Daito Id., S.E. Loo-Choo group, KURODA J. Mammal. Baltimore 2 p. 210.

Rhinolophus ferrum-equinum irani subsp. n. Shiraz, CHEESMAN J. Bombay N.H.S. 27 p. 35; *hipposideros* development of nervous centres, LUNA Mon. Zool. Firenze 32 p. 25.

PHYLLOSTOMATIDAE.

Anoura geoffroyi antricola subsp. n. Ecuador, ANTHONY Amer. Mus. Novit. No. 20 p. 5.

Lonchoglossa wiedi aequatoris subsp. n. Ecuador, LÖNNBERG Ark. Zool. 14 No. 4 p. 65.

VESPERTILIONIDAE.

Lasionycteris noctivagans at sea, THOMAS J. Mammal. Baltimore 2 p. 167.

Lasiurus borealis at sea, THOMAS J. Mammal. Baltimore 2 p. 167.

Myotis myotis risorius subsp. n. Shiraz, CHEESMAN J. Bombay N.H.S. 27 p. 36.

Nycteris borealis at sea, HAAGNER J. Mammal. Baltimore 2 p. 36.

Scotomanes ornatus imbreensis Jaintia Hills, Assam, o. *sinensis* Kuatun, China, subsp. n., THOMAS J. Bombay N.H.S. 27 p. 772.

MOLOSSIDAE.

Cheiromeles parvidens sp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34 p. 100.

Promops davisoni sp. n., Lima, Peru, THOMAS Ann. Mag. N.H. (9) 8 p. 139.

III.—INSECTIVORA.

MACROSCOLIDAE.

Elephantulus ocularis sp. n., Dodoma, Tanganyika Territory, KERSHAW Ann. Mag. N.H. [9] 8 p. 563.

SORICIDAE AND TALPIDAE.

Blarina montivaga sp. n. Ecuador, ANTHONY Amer. Mus. Novit. No. 20 p. 5; *brevicauda* habits, KLUUGH J. Mammal. Baltimore 2 p. 35.

Crociodura tatianae [corrected by author in his reprints to *sarudnyi*] p. 338 E. Persia; *dinnicki* p. 340 Stavropolis; *suaveoleus orientis* p. 341 R. Tuman-gan, spp. et subsp. n., OGNEV Ann. Mus. Zool. Petrograd 1921; *elongata*, *ingripes*, n. *lipara*, p. 101, *rhoditis*, *lea*, p. 102, *levicula* p. 103 subsp. et spp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34.

Crossogale p. 244 *sumatrana* Sumatra, gen. et sp. n., THOMAS Ann. Mag. N.H. [9] 7, and Treubia, Batavia 2 p. 113.

Cryptotis medellinius sp. n. Colombia, THOMAS Ann. Mag. N.H. [9] 8 p. 354.

Neomys fodiens brachyotis p. 343 Semiretschje; *argenteus* p. 346 L. Baikal; *soricioides* p. 347 Grodno, subsp. et spp. n., OGNEV Ann. Mus. Zool. Petrograd 1921.

Pachypura chriseos sp. n. Durban, KERSHAW Ann. Mus. Durban 3 p. 31.

Scapanus coat colour, MILLER J. Mammal. Baltimore 2 p. 163.

Sorex merriami status, JACKSON J. Mammal. Baltimore 2 p. 29; *obscurus parvidens* p. 161 San Bernardino Mts., *pacificus sonomae* p. 162 Coast region, California subsp. n., JACKSON J. Mammal. Baltimore 2; *macropygmaeus pleskei* p. 311 Petrograd, m. *rosanovi* p. 313 L. Baikal, m. *altaicus* p. 314 Tomsk, m. *araneoides* p. 315 Lake Baikal; *amasari* p. 316 R. Amazar; *ultimus petchorae* p. 317 Petchora; *buchariensis* p. 320 Buchar Mts.; *minutus volnuchini* p. 322 N.W. Caucasus; *tscherskii neglectus* p. 324 Moscow, *ussuriensis* p. 326 Ussuri; *sibiriensis* p. 328 Tomsk; *araneus tomensis* p. 329 Tomsk, a. *schirtnikovi*

p. 330 Semiretschje, a. *satunini* p. 331 Kars Region; *platycranius* p. 334 Ussuri; *thomasi* p. 336 L. Baikal, spp. et subsp. n., OGNEV Ann. Mus. Zool. Petrograd 1921.

Sylvisorex gemmeus sheppardi subsp. n. Gorongoza, P.E.A., KERSHAW Ann. Mus. Durban 3 p. 32.

Talpa Saisonfunktion des Nebenhodens, REICHEL Anat. Anz. Jena 54 p. 129; DISSELHORST Anat. Anz. Jena 54 p. 285.

ERINACEIDAE.

Morphologisch-geographische Formenreihen, LECHE Lunds Univ. Årsskr. N.F. Avd. 2 16 No. 10 p. 4.

Erinaceus europaeus habits, LORING J. Mammal. Baltimore 2 p. 110; lachrymal gland, HURST J. Anat. London 55 p. 49.

Paraechinus deserti blancalis subsp. n. Island of Djerba, S.E. Tunis, THOMAS Ann. Mag. N.H. [9] 8 p. 570.

CENTETIDAE.

Centetes caudatus development of teeth, ADLOFF Anat. Anz. Jena 49 p. 503.

CHRYSOCHLORIDAE.

Chrysochloris bayoni sp. n. Robben Island, Cape Colony, DE BEAUX Atti Soc. ital. sc. nat. 60 p. 236.

IV.—CARNIVORA.

Carnivora dell'Abruzzo e del Molise, ALTOBELLO Mammiferi IV, p. 1; abnormal blood vessels, SONNTAG Proc. Zool. Soc. 1921 p. 587.

A.—Carnassidentia.

FELIDAE.

Caracal caracal poecilotis subsp. n. Mt. Baguezan, Asben, THOMAS & HINTON Nov. Zool. Tring 28 p. 3.

Felis caudata griseoflava p. 95 obere Tschugebiet, c. *longipilis* p. 97 Gebiet östlich des Balkaschsees, subsp. n., ZUKOWSKY Arch. Natg., Berlin Abt. A 80 9; *caudata macrothrix* p. 125 nom. nov. for c. *longipilis* Zukowsky 1914 preoccupied by *F. longipilis* Fitz., (*Felis*) *murgabensis* p. 127, Upper

Murgab, N.W. Afghansitan, *matschiei* p. 130 Geok Tepe, Transcaspia, *maimannah* p. 139 N. Afghanistan spp. n., ZUKOWSKY *Ibid.* Abt. A. 80 10; *caudata macrothrix* Skull, ZUKOWSKY *Ibid.*, 87 Abt. A. p. 175; *silvestris* zur genaueren Kenntnis, ECKSTEIN *Ibid.*, Abt. A. 12 85 p. 1; *molisana* sp. n. Molise, ALTOBELLO Mammiferi IV p. 55; *ocrea iraki* Koweit, Arabia subsp. n.; CHEESMAN J. Bombay N. H. S. 27 p. 9; *haussa* sp. n. Zinder, W. Sahara, THOMAS & HINTON Nov. Zool. Tring 28 p. 2; *pardus* characters, habits, distribution and hunting, BURTON J. Bombay Nat. Hist. Soc. 26 p. 266.

†*Ischyrosmilus osborni* sp. n. Ricardo beds California p. 545 figs. 156-7, p. 546, MERRIAM Bull. Dept. Geol. Univ. Cal. Pub. 11 1919.

†*Smilodon* skull Pleistocene Texas, LULL Amer. J. Sci. [5] 2 p. 160.

VIVERRIDAE.

Atilax paludinosus spadiceus subsp. n. Spanish Guinea, CABRERA Bol. R. Soc. Esp. Hist. Nat. 21 p. 262.

Genetta insularis sp. n. Fernando Po, CABRERA Bol. R. Soc. Esp. H. N. 21 p. 261.

Herpestes edwardsi carnaticus nom. nov. for *Mungos mungo ellioti* Wroughton antedated by *H. ellioti* Blyth (1851), WROUGHTON J. Bombay N.H.S. 28 p. 23; *brachyurus* key to subspp., *b. sumatrius* p. 134, Sumatra, *b. rajah* Balinean, in lowlands, *b. dyacorum* Mt. Dulit, Sarawak subspp. n. p. 135, THOMAS Ann. Mag. N.H. [9] 8; *smithii* key to subspecies, *s. zeylanicus* p. 24 E.P. Ceylon, *s. rusanus* p. 25 Sambhar, *s. canens* p. 25 Mt. Abu, Rajputana, subspp. n., THOMAS J. Bombay N.H.S. 28; *griseus* in Kentucky, JACKSON J. Mammal., Baltimore 2 p. 234.

Paguma larvata yunalis p. 617 Yunnan, *l. rivalis* p. 618 Yang-tze, subspp. n., THOMAS Ann. Mag. N.H. [9] 8.

HYAENIDAE.

Morphologisch-geographische Formen-reihen, LECHE Lunds Univ. Årsskr. N.F. Avd. 2 16 No. 10 p. 50.

†*Chasmaporthetes ossifragus* gen. et. sp. n. Pleistocene Arizona, HAY Proc. U. S. Nat. Mus. 59 p. 636.

CANIDAE.

Dental abnormalities, AGDUHR Stockholm Vet.-Ak. Handl. 61 No. 17.

†*Aelurodon ? aphobus*, sp. n. Ricardo Beds California p. 535 figs. 144 a, b, p. 536, MERRIAM Bull. Dept. Geol. Univ. Cal. Pub. 11 1919.

Canis Pleistocene Arizona, HAY Proc. U. S. Nat. Mus. 59 p. 632; Haut und Rückbildung der Haare beim Nackthunde, PRINZHORN Jenaische Zs. Natw. 57 p. 143; *lupus italicus* subsp. n., Abruzzo, ALTOBELLO Mammiferi IV p. 41; *lupus* and *familiaris* distinctive characters in os penis, CHAINE C. R. soc. biol. Paris 84 p. 125; *familiaris* schuppenförmige Profilierung der Hautoberfläche, HIETEL Anat. Anz. Jena 49 p. 97; *dingo* history and status, JONES Trans. R. Soc. S. Aust. 55 p. 254; Timber wolf habits, JOHNSON J. Mammal. Baltimore 2 p. 11.

Cerdocyon tucumanus Tucuman, thous jucundus E. Jujuy sp. et subsp. n., THOMAS Ann. Mag. N. H. [9] 7 p. 382.

Pseudalopex zorrilla Catamarca sp. n., THOMAS Ann. Mag. N. H. [9] 7 p. 383.

†*Theriodictis* Mercerat dental characters and status, KRAGLIEVICH An. Soc. Cient. Argent. Buenos Aires 83 p. 262.

Thos lupaster maroccanus subsp. n. Mogador, CABRERA Bol. R. Soc. Esp. H.N. 21 p. 263.

Vulpes pallida harterti p. 4 Damergou, *rippelli caesia* p. 5 Mt. Baguezan, W. Sahara, subsp. n., THOMAS & HINTON Nov. Zool. Tring 28.

URSIDAE.

†*Arctotherium* canine tooth worked by man, AMEGHINO Prim. Réun. Nac. soc. Arg. Cienc. Nat. 1919 p. 155.

Ursus americanus destroying game, HOWELL J. Mammal. Baltimore 2 p. 36; *arctos* la chasse en Valais, BOURBAN Bull. Murith Lion 40 p. 80; *arctos marsicanus* subsp. n. Abruzzo, ALTOBELLO Mammiferi IV p. 15; *maritimus* breeding in captivity, BORG-GREVE Jahresber. Prov.-Ver. Wies. Münster 43 p. 120.

PROCYONIDAE.

External characters and classification, POCOCK Proc. Zool. Soc. 1921 p. 389.

Ailuropoda M.-Edw. the earlier and tenable form of "*Ailuropus*" p. 391 systematic position p. 417, Pocock Proc. Zool. Soc. 1921.

Ailuropus see *Ailuropoda*.

Bassaricyon beddardi sp. n. British Guiana, Pocock Ann. Mag. N.H. [9] 7 p. 231.

Nasua gualea p. 30, *nasua söderströmi* p. 98, *henseli* p. 102, *h. cinerascens* subsp. et sp. n. p. 103 Ecuador, LÖNNBERG Ark. Zool. 14 No. 4.

MUSTELIDAE.

Auditory bullae and other cranial characters, Pocock Proc. Zool. Soc. 1921 p. 472.

Arctonyx annaeus Annam sp. n., THOMAS Ann. Mag. N.H. [9] 7 p. 524.

Conepatus mesoleucus in Colorado, FIGGINS J. Mammal. Baltimore 2 p. 112; *suffocans pampanus* p. 221, *s. mendosus* p. 222 subsp. n. Argentina, THOMAS Ann. Mag. N.H. [9] 8.

†*Foetorius eversmanni* in travertine of Weimar, SOERGEL Zs. d. geol. Ges. Berlin 69 p. 139.

Grissonella huronax p. 213; *ratellina* p. 215 Argentina spp. n., THOMAS Ann. Mag. N.H. [9] 8.

Gulo climbing, GRINNELL [G.B.] J. Mammal. Baltimore 2 p. 36.

Hydrictis nom. nov. to replace *Hydrogale* Gray (preoccupied) a special genus in Lutrinae for *Lutra maculicollis*, Pocock Proc. Zool. Soc. 1921 p. 543.

Lutra maculicollis mutandae subsp. n. Lake Mutanda, British Ruanda, HINTON Ann. Mag. N.H. [9] 7 p. 368.

Lutrinae external characters and generic classification of Old World forms p. 535, descent of the subfamily p. 544, Pocock Proc. Zool. Soc. 1921.

Martes martes in E. Yorkshire, St. QUINTIN Naturalist London 1921 p. 3.

Mellivora wilsoni Iraq-Persian Frontier sp. n., CHEESMAN J. Bombay N.H.S. 27 p. 13.

Mephitis discharge and properties of scent, DICE p. 38; *putida* "handstand" habit, JOHNSON p. 87 J. Mammal. Baltimore 2.

Mustela longicauda palatal obstruction, SOPER p. 37; *washingtoni* nest, SHAW p. 167; *macrodon* in Maine, SETON p. 168 J. Mammal. Baltimore 2; *hamptoni* Upper Burma sp. n., THOMAS J. Bombay N.H.S. 27 p. 500; *rizosa namiyei* subsp. n. N. Hondo Japan, KURODA J. Mammal. Baltimore 2 p. 209; †*buwaldi* sp. n. Ricardo beds Mohave Desert p. 542 fig. 154 p. 543, MERRIAM Bull. Dept. Geol. Univ. Cal. Pub. 11 1919.

Mydaus javanensis montanus subsp. n. N. Borneo, MOULTON J. Straits Asiat. Soc. Singapore 83 p. 143.

Paraonyx p. 195 *philippsi* p. 196 gen. et sp. n., British Ruanda *Aonyx capensis congica* Lönnberg referred to *Paraonyx* p. 198, HINTON Ann. Mag. N.H. [9] 7.

Taxidea taxus swimming, WOOD J. Mammal. Baltimore 2 p. 170; *robusta* sp. n. Pleistocene Arizona, HAY Proc. U. S. Nat. Mus. 59 p. 631.

B.—Pinnipedia.

Baltic species habits, HOLM Fauna och Flora Uppsala 16 p. 241.

Callorhinus alascanus on coast of Oregon, JEWETT J. Mammal. Baltimore 2 p. 235.

†*Cystophora cristata* (?) in Pleistocene of New York, BISHOP J. Mammal. Baltimore 2 p. 170.

Eumetopias stelleri on Californian Coast, EVERMANN J. Mammal. Baltimore 2 p. 16.

Mirounga angustirostris off Santa Cruz Id. California, A. W. ANTHONY J. Mammal. Baltimore 2 p. 112.

†*Pliopedia pacifica* gen. et sp. n. Pliocene California, KELLOGG J. Mammal. Baltimore 2 p. 213.

Pusa hispida pygmaea skull, ZUKOWSKY Arch. Natg. Berlin 87 10 pp. 183, 191.

Trichechus rosamaris Oberlippe und Sinushaare, SCHMITSORF Arch. Natg. Berlin Abt. A. 82 3 p. 54.

Walrus in British waters, history, RITCHIE Scot. Nat. Edinburgh 1921 pp. 5 and 77.

C.—Creodonta.

†*Theriodictis* a Creodont, MERCERAT 247 [cf. Canidae].

V.—RODENTIA.

Ecuador, LÖNNBERG Fauna och Fl. Uppsala 16 p. 145; Unit character variation, DUNN J. Mammal. Baltimore 2 p. 125; infraseptale Nasenhöhlendrüse, BROMAN Anat. Anz. Jena 49 p. 170; Musculus transversus mandibulae, CORDS *Ibid.* 51 p. 107; unbekannte quergestreifte Muskeln im harten Gaumen, BROMAN *Ibid.* 52 p. 1; Mice and Chipmunks restocking forests, [HOFMANN] J. Mammal. Baltimore 2 p. 113.

SCIURIDAE.

Callosciurus castaneiventris gloveri W. Sze-chwan subsp. n., THOMAS J. Bombay N.H.S. 27 p. 502; *epomophorus panjius* p. 119 Paulau Panjang, e. *panjioli* p. 120 P. Panjang Anak, e. *nakanus* Koh Naka, e. *mapravis* Koh Maprau, e. *pipidonis* p. 121 Koh Pipidon, e. *tacopius* Koh Rah, *concolor telibius* Pulau Telibun, *moheius* p. 122 Pulau Mohea, north, m. *mohillius* Pulau Mohea, south, sp. et subsp. n., THOMAS & ROBINSON Ann. Mag. N.H. [9] 7; *erythraeus wellsii* p. 775 subsp. n. Jaintia Hills, Assam, key to the *erythraeus*-group p. 776, WROUGHTON J. Bombay N.H.S. 27.

Callospermophilus lateralis certus subsp. n. S. Nevada, GOLDMAN J. Mammal. Baltimore 2 p. 232.

Citellus † *taylori* p. 616 Texas, *tuitus* p. 627 Arizona, Pleistocene spp. n., HAY Proc. U. S. Nat. Mus. 59.

Cynomys antiscorbutic requirement MCCOLLUM & PARSONS; † *niobrarius* sp. n. Pleistocene Nebraska, HAY Proc. U. S. Nat. Mus. 59 p. 615.

Dremomys rufigenis lacmache Middle Mekong subsp. n., THOMAS Ann. Mag. N.H. [9] 7 p. 182.

Euxerus erythropus agadius subsp. n. Agades, W. Sahara, THOMAS & HINTON Nov. Zool. Tring 28 p. 6.

Geosciurus capensis habits, J. Dept. Agric. Un. S. Afr. Pretoria 3 p. 431.

Marmota flaviventris fortirostris subsp. n. E. California, GRINNELL Univ. Cal.

Pub. Zool. Berkeley 21 p. 242; † *arrodens* p. 611 Washington, *arizonae* p. 627 Arizona Pleistocene spp. n., HAY Proc. U. S. Nat. Mus. 59; *monax* climbing trees, St. JOHN J. Mammal. Baltimore 2 p. 207.

Myosciurus minutulus nom. nov. for *M. minutus* Du Chaillu (1861) preoccupied by *Sciurus minutus* Lartet (1851), HOLLISTER Proc. Biol. Soc. Washington 34 p. 135.

Petaurista punctata sumatrana habits and fig., JACOBSON J. Fed. Malay Mus. 10 p. 239.

Pteromys (Hylopetes) leonardi N. Burma sp. n., THOMAS J. Bombay N.H.S. 27 p. 501.

Sciuropterus volans outside nest, SYNDER J. Mammal. Baltimore 2 p. 171; *russicus orii* subsp. n. Hokkaido Japan, KURODA *Ibid.*, p. 208.

Sciurus adamsi sp. n. North Sarawak, KLOSS J. Straits Asiat. Soc. Singapore 83 p. 151; *vulgaris* subsp. of Eastern Asia, "colatus" misprint for *calotus* Hodgs. p. 250, v. *coreae* p. 252 Corea, v. *chiliensis* p. 253 Chihli, N. China, subsp. n., SOWERBY Ann. Mag. N.H. [9] 7; *boliviensis* nom. nov. for *Macroxus leucogaster* Gary, preoccupied by *Sciurus leucogaster* Cuvier, p. 39; *gerrardi inconstans* nom. nov. for *S. versicolor* Thos. (1900) preoccupied by *S. versicolor* Zimm. (1777), OSGOOD p. 40 J. Mammal. Baltimore 2; *murinus necopinus* p. 98, *evidens* p. 99 subsp. et sp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34; *hudsonicus picatus* subsp. n. S.E. Alaska, SWARTH J. Mammal. Baltimore 2 p. 92. (*Mesosciurus*) *argentinus* sp. n. Higuera, Jujuy, Argentina, THOMAS Ann. Mag. N.H. [9] 8 p. 609; *carolinensis* migration in Wisconsin 1920, JACKSON J. Mammal. Baltimore 2 p. 113.

Tamiops spencei N. Burma sp. n., THOMAS J. Bombay N.H.S. 27 p. 503.

Tenes subgen. n. for *Sciurus persicus*, THOMAS Ann. Mag. N.H. [8] 3 p. 468 [omitted from 1909 Record].

CTENODACTYLIDAE.

Massoutiera rothschildi sp. n. Mt. Baguazan, Asben, THOMAS & HINTON Nov. Zool. Tring 28 p. 11.

CASTORIDAE, GLIRIDAE AND DIPODIDAE.

Beaver culture and national forests, RILEY J. Mammal. Baltimore 2 p. 197.

Castor canadensis "forms," JOHNSON J. Mammal. Baltimore 2 p. 171.

Dipodomys revised list of species, GRINNELL J. Mammal. Baltimore 2 p. 94.

Glis glis in Pleistocene of Süssenborn, SOERGEN Zs. d. geol. Ges., Berlin A. 71 p. 59.

Jaculus loftusi vocator subsp. n. Muscat, THOMAS Ann. Mag. N.H. [9] 8 p. 441; *jaculus*; "*Dipus darricarrerei*" Lataste a synonym of *J. j. deserti* Loche; *j. airensis* Damergou W. Sahara; *j. sefrius* Ain-Sefra S.W. Algeria p. 10; *j. centralis* Central Algerian Sahara p. 11, subspp. n., THOMAS & HINTON Nov. Zool. Tring 28.

Myoxidae Verbreitung und Lebensweise in Sachsen, ZIMMERMANN Arch. Natg. Berlin Abt. A. 87 10 p. 199.

Myoxus glis Verbreitung in Schlesien, PAX Arch. Natg. Berlin Abt. A. 84 10 p. 156.

Napaeozapus in Ontario, SAUNDERS J. Mammal. Baltimore 2 p. 237.

Perodipus microps preblei subsp. n. S. E. Oregon, GOLDMAN J. Mammal. Baltimore 2 p. 233.

MURIDAE.

Selection of Australian lecto-types, THOMAS Ann. Mag. N.H. [9] 8 p. 432; of Morocco, CABRERA Real. Soc. Esp. Hist. Nat. Madrid tomo del 50° aniv. p. 42.

Acomys airensis sp. n. Mt. Baguazan Asben, THOMAS & HINTON Nov. Zool. Tring 28 p. 8.

Akodon toba Northern Chaco Paraguay p. 178; *sylvanus* S. E. Jujuy spp. n., THOMAS p. 184 Ann. Mag. N.H. [9] 7.

Conilurus melibius sp. n. Melville Id., THOMAS Ann. Mag. N.H. [9] 8 p. 431.

Cricetomys buechanani sp. n. Farniso near Kano N. Nigeria, THOMAS & HINTON Nov. Zool. Tring 28 p. 7.

Echiothrix centrosa &c. *brevicula* sp. & subsp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34 p. 67.

Eropeplus p. 94, *canus* p. 95 gen. et sp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34.

Evotomys glareolus reinwaldti subsp. n. Esthonia, HINTON Ann. Mag. N.H. [9] 8 p. 128.

Fiber zibethicus in Central Europe, AHRENS J. Mammal. Baltimore 2 p. 236.

Hapalotis murinus referred to genus *Pseudomys* probably synonymous with *Ps. australis*, THOMAS Ann. Mag. N.H. [9] 8 p. 620.

Hesperomys muriculus sp. n. Bolivia, THOMAS Ann. Mag. N.H. [9] 8 p. 623.

Hydromys nauticus p. 429 Aru Ids., *melicertes* p. 430 Melville Id., spp. n., THOMAS Ann. Mag. N.H. [9] 8.

Hypsims deceptor sp. n. Higuierilla Jujuy Argentina, THOMAS Ann. Mag. N.H. [9] 8 p. 613.

Ichthyomys tweedii sp. n. Ecuador, ANTHONY Amer. Mus. Novit. No. 20 p. 1.

Leggada jacksoniae p. 596 Khasi and Garo Hills, *nagarum* p. 597 Upper Assam, spp. n., THOMAS J. Bombay N.H.S. 27.

Lemniscomys olga sp. n. Damergou W., Sahara, THOMAS & HINTON Nov. Zool. Tring 28 p. 9.

Lenomys longicaudus sp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34 p. 95.

Leporillus jonesi sp. n. Franklin's Island, Nuyts Archipelago, S. Australia, THOMAS Ann. Mag. N.H. [9] 8 p. 619.

Melasmothrix p. 93, *naso* p. 94 gen. et sp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34.

Micromys minutus notes, KRAUSSE Arch. Natg. Berlin Abt. A. 85 [7] p. 96.

Microtus irani sp. n. Shiraz, THOMAS J. Bombay N.H.S. 27 p. 41; [*Pitymys*] *subterraneus* habits, ZIMMERMANN Arch. Natg. Berlin Abt. A. 86 [8] p. 84; [*Arvicola*] *amphibius* parthenogenesis,

SANSOM J. Anat. London 55 p. 68; (*Chionomys bogdanovi* sp. n. Montenegro, MARTINO Ann. Mag. Nat. Hist. [9] 9 p. 413; (*Eothenomys cacinus* N. Burma sp. n., THOMAS J. Bombay N.H.S. 27 p. 504.

Mus musculus far Mogador subsp. n., CABRERA Real. Soc. Esp. Hist. Nat. Madrid tomo del 50° aniv. p. 46; notes on German species and parasites KRAUSSE Arch. Natg. Berlin 82 12 p. 159; *spicilegus caecii* subsp. n. Sardinia, KRAUSSE Ibid. 85 7 p. 95, (*Musculus*) *Jamesoni* p. 40 North Bull Id. Dublin Bay, (*Mus*) *sylvaticus bergensis* subsp. n. Bergen p. 41 KRAUSSE Ibid. 87 6, *musculus* specimen with six hind toes, SOPER J. Mammal. Baltimore 2 p. 237.

Neotomys vulturinus sp. n. Lagunita Jujuy Argentina, THOMAS Ann. Mag. N.H. [9] 8 p. 612.

Neusticomys monticolus gen. et sp. n. Ecuador, ANTHONY Amer. Mus. Novit. No. 20 p. 2.

Notomys sturti p. 537 New South Wales, *macrodis* p. 538 W. Australia, *mittelli macropus* p. 540 S. Australia, *aquilo* p. 540 N. Queensland, spp. et subsp. n., THOMAS Ann. Mag. N.H. [9] 8.

Ecomys rutilus sp. n. British Guiana, ANTHONY Amer. Mus. Novit. No. 19 p. 4.

Oryzomys warrini p. 177 Northern Chaco, Paraguay; *barbacoas ochrinus* S.W. Colombia sp. et subsp. n. p. 449 Ann. Mag. N.H. [9] 7, *infectus* sp. n. Colombia, Ibid. [9] 8 p. 356, THOMAS.

Oxymeris akodontius sp. n. Higuerilla, Jujuy, Argentina, THOMAS Ann. Mag. N.H. [9] 8 p. 615.

Phenacomys silvicolus sp. n. Oregon, HOWELL J. Mammal. Baltimore 2 p. 98.

Phyllotis nogalaris sp. n., Higuerilla, Jujuy, Argentina, THOMAS Ann. Mag. N.H. [9] 8 p. 611.

Pseudomys australis oralis subsp. n. New South Wales, THOMAS Ann. Mag. N.H. [9] 8 p. 621.

Pseudomys vide *Hapalotis*.

Rattus temperature and sexual phenomena, PRZIBAM Anz. Akad. Wiss. Wien 56 p. 251; *pernanus* sp. n.,

Amala River, East Africa, KERSHAW Ann. Mag. N.H. [9] 8 p. 568; *rattus chionogaster* p. 51 Mogador, *r. nericola* p. 54 Saf-saf subsp. n., CABRERA Real. Soc. Exp. Hist. Nat. Madrid tomo del 50° aniv; *r. chionogaster* Cabrera (nec. Lönnberg) replaced by *R. r. sneirensis* nom. nov., CABRERA Bol. R. Soc. Esp. H.N. 21. p. 159; *wellsi* p. 26 Khasi Hills, *listeri garonum* p. 27 Garo Hills, Assam sp. et subsp. n., THOMAS J. Bombay N.H.S. 28; *dominator* p. 244, *bontanus* p. 245, *marinosurus* p. 246, *dammerniani* p. 247, *pesticulus* p. 248 Celebes, spp. n., THOMAS Ann. Mag. N.H. [9] 7; *dominator camarus*; *facetus* p. 96, *hamatus* p. 97; *punicans* p. 98 subsp. et spp. n. Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34; *musschenbroekii tetricus*, *raveni*, p. 68, *raveni euros*, *palelae* p. 69, *hoffmanni linchiensis*, *h. subditivus*, p. 70, *mollicomus*, *adpersus*, p. 71, *nigellus*, *penitus*, p. 72, *sericatus*, *rallus*, p. 73, *hellwaldii localis*, *h. cereus*, p. 74 subsp. et spp. n., Celebes, MILLER & HOLLISTER Proc. Biol. Soc. Washington 34; *bandahara* Kina Balu, N. Borneo, *panglima* Palawan, spp. n., ROBINSON Ann. Mag. N.H. [9] 7 p. 235; *culmorum vallesius* p. 426 N. S. Wales *c. austrinus* p. 427 S. Australia, *melvilleus* Melville I., *mondraineus* p. 428 Mondrain I., subsp. et spp. n., THOMAS Ann. Mag. N.H. [9] 8; *villo-sissimus profusus* subsp. n. Liverpool Plains, New South Wales, THOMAS Ann. Mag. N.H. [9] 8 p. 620.

Reithrodon caurinus p. 473 Catamarca, *auritus marinus* p. 474 Buenos Ayres, *typicus currentium* p. 475 Corrientes, sp. et subsp. n., THOMAS Ann. Mag. N.H. [9] 5 p. 473.

Rhipidomys austrinus S. E. Jujuy sp. n., THOMAS Ann. Mag. N.H. [9] 7 p. 183.

Rhizomys wardi N. Burma sp. n., THOMAS J. Bombay N.H.S. 27 p. 504.

Scapteromys aquaticus sp. n. Delta of the Parana, THOMAS Ann. Mag. N.H. [9] 8 p. 477.

Sigmodon lönnbergi W. Ecuador sp. n., THOMAS Ann. Mag. N.H. [9] 7 p. 448.

Tatera pitmani Tigris sp. n., CHEESMAN J. Bombay N.H.S. 27 p. 15.

Taterona swaythlingi p. 565 Morogoro, *taborae* p. 566 Tabora, *cosensi* p. 567 Vihingo, Dar-es-Salaam, spp. n., KERSHAW Ann. Mag. N.H. [9] 8.

Thomasomys nicefori sp. n. Colombia, THOMAS Ann. Mag. N.H. [9] 8 p. 355.

Uranomys woodi p. 369 S. Nyasaland, *tenebrosus* p. 370 N.W. Nyasaland, spp. n., HINTON Ann. Mag. N.H. (9) 7.

Uromys caurinus sp. n., Talaud Islands, THOMAS Treubia Batavia 2 p. 112; *talaudium* Talaud Ids. sp. n., THOMAS Ann. Mag. N.H. [9] 7 p. 248.

GEOMYIDAE AND BATHYERGIDAE.

Cryptomys blainei sp. n. Angola, HINTON Ann. Mag. N.H. [9] 7 p. 372.

Thomomys douglasii shawi subsp. n. Mount Rainier Washington, TAYLOR Proc. Biol. Soc. Washington 34 p. 121; *perpallidus amargosae* subsp. n. E. California, GRINNELL Univ. Cal. Pub. Zool. Berkeley 21 p. 239; †*scudderi* sp. n. Pleistocene Oregon, HAY Proc. U. S. Nat. Mus. 59 p. 614.

OCTODONTIDAE, HYSTRICIDAE,

CAVIIDAE, ETC.

Hystricidae morphologisch-geographische Formenreihen, LECHE Lunds Univ. Årsskr. N.F. Afd. 2 16 No. 10 p. 10.

Abrocoma budini sp. n. Catamarca, Ann. Mag. N.H. [9] 5 p. 475, *schistacea* p. 216, *vaccarum* p. 217 Argentina spp. n. *Ibid.* [9] 8, THOMAS.

Atherurus assamensis sp. n. Assam, THOMAS J. Bombay N.H.S. 27 p. 598.

Cavia perilymphatisches Raum des Ohres, BURLET Anat. Anz. Jena 53 p. 302.

Caviella australis nigriana p. 446 Rio Negro, *a. joannina* San Juan, *a. salinia* p. 447 S.E. Catamarca subsp. n., THOMAS Ann. Mag. N.H. [9] 7.

Coelogenys paca guanta subsp. n. Ecuador, LÖNNBERG Ark. Zool. 14 No. 4 p. 45.

Otenomys goodfellowi p. 136 E. Bolivia, *budini barbarus* p. 185 S.E. Jujuy, *coludo johannis* p. 523, San Juan, Ann. Mag. N.H. [9] 7, *tulduco* W. Argentina, *Ibid.* 8 p. 218, THOMAS spp. et subsp. n.

Dactylomys dactylinus modestus subsp. n. Ecuador, LÖNNBERG Ark. Zool. 14 No. 4 p. 38.

Dasyprocta paraguayensis Liais (1872) based on Azara's *Acouti*, *felicia* Thos becoming a synonym, OSGOOD J. Mammal. Baltimore 2 p. 39.

Dinomys gigas sp. n. Colombia, ANTHONY Amer. Mus. Novit. No. 19 p. 6; *branickii occidentalis* subsp. n. Ecuador, LÖNNBERG Ark. Zool. 14 No. 4 p. 49 textfig. E.

Echimys occasius Ecuador, sp. n., THOMAS Ann. Mag. N.H. [9] 7 p. 450; *longirostris* sp. n. British Guiana, ANTHONY Amer. Mus. Novit. No. 19 p. 5.

Lagidium boxi N. W. Patagonia, Ann. Mag. N.H. [9] 7 p. 180, *tontalis* p. 219 *viatorum* p. 220 Argentina, *Ibid.* [9] 8, THOMAS spp. n.

Myoprocta exilis parva subsp. n. Ecuador, LÖNNBERG Ark. Zool. 14 No. 4 p. 41.

Octomys joannius W. Argentina sp. n., THOMAS Ann. Mag. N.H. [9] 8 p. 217.

Proechimys key to Brazilian forms, *Trinomys* subgen. n., THOMAS Ann. Mag. N.H. [9] 8 p. 149 (see also under *Trinomys*).

Trinomys p. 140 subgen. n. of *Proechimys* (genotype *P. (T) albispinus* I. Geoff); key to Brazilian forms, *albispinus sertoni* p. 142 subsp. n. Iamarao, Bahia, THOMAS Ann. Mag. N.H. [9] 8.

LEPORIDAE AND OCHOTONIDAE.

Brachylagus †browni sp. n. Pleistocene Arizona, HAY Proc. U. S. Nat. Mus. 59 p. 630.

Lepus Pigmentdrüse in der Nasenhaut, SCHUMACHER Anat. Anz. Jena 50 p. 161; *americanus* habits, SOPER J. Mammal. Baltimore 2 p. 101; *alleni* Caesarian oeration, notes on young, VORTRIES *Ibid.* p. 114; †*benjamini* sp. n. Pleistocene Arizona, HAY Proc. U. S. Nat. Mus. 59 p. 628; *canopus* sp. n. Farniso near Kano N. Nigeria, THOMAS & HINTON Nov. Zool. Tring 28 p. 12; *europaeus* eine fetale Fellzeichnung, SCHUMACHER Anat. Anz. Jena 52 p. 90; *omanensis cheesmani*

subsp. n. Arabia, THOMAS Ann. Mag. N.H. [9] 8 p. 28; *varronis* Vorkommen von Schuppen an den Ohrmuscheln, SCHUMACHER Anat. Anz. Jena 50 p. 473.

Nesolagus netscheri note and fig., JACOBSON J. Fed. Malay Mus. 10 p. 235.

Oryctolagus cuniculus Wadenmuskeln, FORSTER Anat. Anz. Jena 49 p. 81.

Sylvilagus nicefori sp. n. Colombia, THOMAS Ann. Mag. N.H. [9] 8 p. 442.

VI.—UNGULATA.

Tertiary S. E. Nevada, STOCK Amer. J. Sci. [5] 2 p. 250.

A.—Artiodactyla.

Uterus masculinus, SKODA Anat. Anz. Jena 50 p. 111.

Alcelaphus Blainville (1816) genotype *A. buselaphus* the tenable name for *Bubalis*, HOLLISTER Proc. Biol. Soc. Washington 34 p. 77.

Anoa Verbreitung der Arten auf Celebes, MOHR Arch. Natg. Berlin Abt. A. 87 6 p. 208.

Antilocapra shedding of horns, G. B. GRINNELL J. Mammal. Baltimore 2 p. 116; SKINNER *Ibid.* p. 172.

Bos primigenius in Peeblesshire, ECKFORD Scottish Nat. 1921 p. 104; in Linlithgowshire, RITCHIE *Ibid.* p. 168; *taurus* Entwicklungsgeschichte, MIEHL Anat. Anz. Jena 53 p. 193; *taurus longifrons* osteology, KÜHNEMANN Arch. Natg. Berlin Abt. A. 85 p. 59; hair in domestic cattle, CAMEK J. Agric. Sci. Cambridge 10 p. 12; Japanese cattle characters, IGUCHI J. Coll. Agric. Hokkaido 9 p. 261.

Bos and *Bison* Halswirbelsäule, HILZHEIMER Arch. Natg. Berlin Abt. A. 87 p. 1.

Bison skulls and horns, HILZHEIMER Arch. Natg. Berlin Abt. A. 84 [6] p. 41; *europaeus* present status, AHRENS J. Mammal. Baltimore 2 p. 58.

Bubalis cokei schulzi subsp. n., ZUKOWSKY Arch. Natg. Berlin Abt. A. 80 9 p. 101 [*c. sabakiensis* and *c. wembaerensis* Zukowsky first described Wild und Hund 16 1910 p. 208].

Bubalis see *Alcelaphus*.

Capra hybrids in Transkaukasien skulls, PRIZENMAYER SitzBer. Ges. natf. Freunde Berlin 1920 p. 154.

Connochaetes albojubatus schulzi skull, Arch. Natg. Berlin Abt. A. 80 8 p. 132; *albojubatus* coloration *Ibid.* 80 10 p. 142, ZUKOWSKY.

Eudorcas thomsoni nakuroensis and *nasalis* skull, ZUKOWSKY Arch. Natg. Berlin Abt. A. 80 10 p. 146.

Gazella in Pliocene and Pleistocene of Algeria, JOLEAUD C.R. soc. géol. France 1917 p. 30; †*fucinii* sp. n. Tertiary Tuscany, DEL CAMPANA Palaeontogr. Italica 24 1918 p. 151.

Oreotragus oreotragus centralis p. 131 N.E. Rhodesia, *o. tyleri* p. 131 Angola, *o. hyatti* p. 133 N. Nigeria, subsp. n., HINTON Ann. Mag. N.H. [9] 8.

Ovis vignei, gmelini and *urmiana* "perversion" des cornes, NASONOV Bul. Acad. Sci. Russia 1919 p. 1215.

†*Tetrameryx shuleri* gen. et sp. n. Pleistocene Texas, LULL Amer. J. Sci. [5] 2 p. 163.

CERVIDAE.

Systematic value of rhinarium, MOHR Arch. Natg. Berlin Abt. A. 83 10 p. 125; dates of shedding of antlers in American species, BROWN J. Mammal. Baltimore 2 p. 39; SKINNER *Ibid.* p. 172; food and its influence upon weight of antlers, MOUQUET Bul. Muséum Paris 1921 p. 31.

Alces pfizenmayeri sp. n., ZUKOWSKY Wild und Hund 16 1910 p. 807 (antedating *A. m. yakutskensis* Millais 1911) N. E. Siberia [= *A. a. bedfordiae* Lydekker 1902] p. 33; *machlis tymensis* p. 42 Tymbecken, *m. angusticephalus* p. 44 Jenissei subsp. n., ZUKOWSKY Arch. Natg. Berlin Abt. A. 80 9; *alces* die Nase, JACOBI Anat. Anz. Jena 52 p. 41.

Capreolus influence of subsoil upon antlers, HESSE Zool. Jahrb. Jena 38 p. 203.

Cervus elaphus prehistoric antlers at Barry, Forfarshire, CARMICHAEL Scottish Nat. 1921 p. 161; Ricke mit Perückengeweihe, KOCH Jahresber. Prov. Ver. Wiss. Münster 45 p. 80; *dama* Pleistocene of Gross-Wusterwitz,

WERTH Zs. d. geol. Ges. Berlin B. 69 p. 237; †(Dama) †*guirinus* sp. n. Tertiary, Rome, p. 135, PORTIS Boll. soc. geol. Ital. Rome, 39 1920.

Odocoileus hemionus × *columbianus* F₂ generation, JACKSON J. Mammal. Baltimore 2 p. 140.

Rusa Biologie und Systematik p. 106, key to subgenera (*Hyelaphus*, *Axis* and *Rusa*) and forms p. 109, MOHR Arch. Natg. Berlin Abt. A. 84 9.

CAMELIDAE.

†*Camelus arctoamericanus* sp. n. Pleistocene Alaska-Yukon, HAY Proc. U.S. Nat. Mus. 59 p. 607.

†*Camelops huerfaniensis* teeth and bones from Pleistocene of Colorado, HAY Proc. U.S. Nat. Mus. 59 p. 600; *huerfaniensis dallasi* subsp. n. Pleistocene Texas, LULL Amer. J. Sci. [5] 2 p. 168.

Lama guanicoe Müller (1776) antedates *huanacos* Molina (1782), OSGOOD J. Mammal. Baltimore 2 p. 39.

†*Procamelus coconinensis* p. 621, *longurio* p. 624 Pleistocene Arizona, spp. n., HAY Proc. U. S. Nat. Mus. 59.

HIPPOPOTAMIDAE, SUIDAE AND DICOTYLIDAE.

Choirepotamus Gray (1843) probably a deliberate correction of *Koirepotamus* and the tenable name of the River Hogs, THOMAS Proc. Biol. Soc. Washington 34 p. 135.

Dicotyles pecari aequatoris subsp. n., EUCADOR LÖNNBERG Ark. Zool. 14 No. 4 p. 56.

Hippopotamidae morphologisch-geographische Formenreihen, LECHE Lunds Univ. Årsskr. N.F. Avd. 2 16 No. 10 p. 42.

Hippopotamus Pleistocene, JOLEAUD C.R. soc. géol. France 1920 p. 22, Bull. Soc. géol. Paris 20 p. 13; *amphibius* Fehlen von Papillae vallatae in der Zunge, PASCHKIS Anat. Anz. Jena 51 p. 446; Venen der Ohrmuschel, SCHUMACHER *Ibid* 49 p. 72; skin of foetus, SCHUMACHER *Ibid*. 51 p. 165.

Hylochoerus schulzi sp. n. Kitete Highlands, ZUKOWSKY Arch. Natg. Berlin 87 10 p. 183.

(n-17041 f) q

Koirepotamus Gray (1843) the tenable name for the Bush Pigs (*Potamochoerus*), HOLLISTER Proc. Biol. Soc. Washington 34 p. 77. See also *Choirepotamus*.

Pecari tajacu macrocephalus subsp. n. British Guiana, ANTHONY Amer. Mus. Novit. No. 19 p. 3.

Potamochoerus see *Koirepotamus*.

Sus scrofa primordial cranium, LEBEDKIN Anat. Anz. Jena 50 p. 539; influence of domestication upon skull, BÄUMLER Arch. Natg. Berlin 87 12 p. 140; *domesticus* Lückzahn, HIRSCH Anat. Anz. Jena 54 p. 321; *barbatus* note on skulls and teeth, KLOSS J. Straits Asiat. Soc. 83 p. 147.

Tayassu pecari dates from Link 1795, OSGOOD J. Mammal. Baltimore 2 p. 39; *pecari beebei* subsp. n. British Guiana, ANTHONY Amer. Mus. Novit. No. 19 p. 1.

EXTINCT FAMILIES.

†*Eporeodon socialis* Tertiary Nebraska mounted skeleton and fig. of feet. THORPE Amer. J. Sci. [5] 11 p. 309.

†*Merycochoerus* ? *buwaldi*, Barstow beds California p. 507, (*Pronomotherium*) *californicus* Ricardo Beds Mohave Desert p. 575, spp. n., MERRIAM Bull. Dept. Geol. Univ. Cal. Pub. 11 1919.

†*Merycoidodon* description of species p. 335, *platycephalus* sp. n. p. 339 Middle Oligocene Nebraska, key to spp. p. 341, THORPE Amer. J. Sci. [5] 11.

B.—Perissodactyla.

EQUIDAE.

Zebroid stripings and pre-natal foldings, KRIEG Anat. Anz. Jena 54 p. 33.

Equus N. American Pleistocene, HAY Proc. U. S. Nat. Mus. 59 pp. 600, 609, 618; maneless zebra, LÖNNBERG Fauna och Fl. Uppsala 16 p. 175; *przewalskii* Hautschwielen, ZIETZSCHMANN Anat. Anz. Jena 49 p. 385; *caballus* El caballo Moruno, CARRERA Mem. R. Soc. Esp. H.N. 12 p. 1; Muskel und Knochen-varietaten, VERMEULEN Anat. Anz. Jena 49 p. 349; with eight lower incisors, OUDEMANS Arch. Natg. Berlin Abt. A. 86 9 p. 21; teeth and bones from La Tène, SCHWERZ Anat. Anz. Jena 50 p. 457.

c 13

†*Merychippus calamarius stylodontus* var. n. Barstow Miocene, Mohave Desert, p. 505, MERRIAM Bull. Dept. Geol. Univ. Cal. Pub. 11 1919.

TAPIRIDAE AND RHINOCEROTIDAE.

†*Diceratherium* general account p. 198, *lobatum* p. 202, *cuspidatum* p. 204 spp. n. Tertiary Oregon, TROXELL Amer. J. Sci. [5] 11.

†*Menoceras* gen. n., for *Diceratherium cooki* Tertiary Nebraska, TROXELL Amer. J. Sci. [5] 11 p. 206.

†*Metacaenopus* species and synonyms, TROXELL Amer. J. Sci. [5] 11 p. 207.

Rhinoceros tetruscus Pliocene di Barga, UGOLINI Palaeontogr. Italica, Pisa 24 p. 121: in lacustrine Pliocene of Perugia, UGOLINI Riv. Ital. Paleont. Parma 27 p. 15.

Tapirus americanus Relief der Agmina Peyer, SCHILLER Anat. Anz. Jena 48 p. 54.

†CHALICOTHERIIDAE.

†*Pernatherium rugosum* Gerv., STEHLIN Bull. soc. géol. Paris 18 p. 123.

C. and D.—Hyracoidea and Proboscidea.

Proboscidea evolution, phylogeny and classification, OSBORN Amer. Mus. Novit. No. 1 p. 1; adaptive radiation and classification, OSBORN Proc. Nat. Acad. Sci. Washington 7 p. 231; Stammesgeschichte und Entwicklungsmechanismus des Gebisses, SOERGEL Geol. palaeont. Abh. Jena N.F. 14 (18) p. 3; Horizontalen Zahnwechsel bei *Mastodon* und *Elephas*, DIETRICH Centralbl. Min. 1921 p. 595; Argentine fossil, CARETTE No. 81; Pleistocene Nebraska, KAY Bull. Geol. Soc. Amer. 32 p. 80.

†*Dinotherium* hand and foot, DIETRICH Zs. d. geol. Ges. Berlin 68 p. 44.

Elephas. Ontogenie des Gebisses, ADLOFF Anat. Anz. Jena 52 p. 534; *africanus* at Beni-Sai (Oranie), EHRLMANN Bul. soc. hist. nat. Alger. 11 p. 139; *indicus* Tastorgane, KOLMER Anat. Anz. Jena 54 p. 73, †*columbi* dentition, SOERGEL Geol. palaeont. Abh. Jena N.F. 14 (18) p. 3, in Pleistocene Texas, LULL Amer. J. Sci. [5] 2

p. 175; *primigenius* skin, causes of extinction, NEUVILLE Smithsonian Rep. Washington 1919 p. 327, molar from Stroud, RAW Geol. Mag. London 58 p. 502, bones and teeth from Hungary, SCHRETER Földt. Közlöny Budapest 47 pp. 173 and 174; †*planifrons* vemeintliche Vorkommen in Niederösterreich, SOERGEL Palaeont. Zs. Berlin 2 p. 1, SCHLESINGER Ibid., p. 215.

Loxodonta africana peeli sexual differences in heads, OSBORN Nat. Hist. New York 21 p. 244.

†*Mastodon* dans la sablière du Konif, près Tebessa, BRIVES C.R. soc. géol. France 1920 p. 212.

†*Tetralophodon barbouri* sp. n., Middle Pliocene Nebraska, OSBORN Amer. Mus. Novit. No. 1 p. 10.

†*Trilophodon giganteus* sp. n. Miocene South Dakota, OSBORN Amer. Mus. Novit. No. 1 p. 10.

Procavia buchanani sp. n. Mt. Baguazan, Asben, THOMAS & HINTON Nov. Zool. Tring 28 p. 13.

VII & VIII.—SIRENIA AND CETACEA.

Cetacea:—

Flossenversteifung, VAN DEINSE Anat. Anz. Jena 49 p. 521; respiratory organs, NEUVILLE Bul. Muséum Paris 1921 p. 209; Blood, MYERS J. Biol. Chem. New York 41 p. 138; Retina von Walembryonen, DOESSCHATE Anat. Anz. Jena 51 p. 200; South African Cetacea, PÉRINGUEY Trans. Roy. Soc. S. Afric. 9 p. 73.

†*Archaeodelphis patrius* gen. et sp. n. Upper Eocene? Alabama?, ALLEN Bul. Mus. Comp. Zool. Cambridge Mass. 65 No. 1 p. 4.

Balaenoptera physalus ["*musculus*"] stranded at Scarborough, CLARKE Naturalist London 1921 p. 364.

Delphinus & *Phocaena* brain, GIERLICH Anat. Anz. Jena 49 p. 285.

Delphinus delphis ganglions lymphatiques, RETTERER & NEUVILLE C.R. soc. biol. Paris 85 p. 328; lung-structure and physiology, FIEBIGER Anat. Anz. Jena 48 p. 540.

†*Diaphoracetus mediantlanticus* in Phosphates of Florida, G. M. ALLEN J. Mammal. Baltimore 2 p. 154.

Halicore dugong divided Meckel's cartilage, MATTHES Anat. Anz. Jena 54 p. 209.

Manatus dentition, MARCUS Arch. Entw. Mech. Leipzig 47 p. 571.

Megaptera nodosa specimen with well developed hind-limbs, ANDREWS Amer. Mus. Novit. No. 9 p. 1; primordial cranium, HONIGSMANN Anat. Anz. Jena 48 p. 113; development of eye, STEINITZ Jenaische Zs. Natw. 56 p. 119.

Mesoplodon bidens Brustflosse, HANKE Anat. Anz. Jena 48 p. 59.

†*Metaxytherium* Skelett von Marczfalva, SCHRETER Földt. Közlöny Budapest 47 p. 176.

Phocaena communis Entwicklungsgeschichte, MÜLLER Arch. Natg. Berlin Abt. A. 86 9 p. 1; Pyramidenbahn, GANS Anat. Anz. Jena 49 p. 281.

Physeter macrocephalus fusion of humerus, radius and ulna, VAN DEINSE Anat. Anz. Jena 49 p. 521.

†*Pomatodelphis inaequalis* gen. et sp. n. p. 148 Phosphates Florida, *Delphinus stenorhynchus* Holl Tertiary France provisionally referred to same genus p. 153, G. M. ALLEN J. Mammal. Baltimore 2.

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†*Schizodelphis depressus* sp. n. Phosphates Florida, G. M. ALLEN J. Mammal. Baltimore 2 p. 145.

IX.—EDENTATA.

Der Hypoglossuskern, STUURMAN Anat. Anz. Jena 49 p. 342; ratselhafte Drüsenhaufen in der Schnauze des Gürteltiers, BROMAN *Ibid.* 50 p. 217; *Xenarthru* Katalog der Roth'schen Sammlung fossiler Säugetiere der Pampas-formation, Skelett der Hand und Fuss, SCHULTESS Abh. Schweiz Pal. Ges. 44 p. 4.

Bradypus tridactylus anatomy, SONN- TAG Proc. Zool. Soc. 1921 p. 157.

Dasyops hybridus dates from Desmarest 1804, OSGOOD J. Mammal. Baltimore 2 p. 39; *villosus* embryology, FERNANDEZ Anat. Anz. Jena 48 p. 305.

†*Eosclerocalyptus lilloi* gen. et sp. n. Miocene La Plata p. 150, AMEGHINO Prim. Réun. Nac. soc. arg. Cienc. Nat. 1919.

†*Megatherium gallardoi* description and figs. of skull, AMEGHINO & KRAGLIEVICH An. Mus. Nac. Hist. Nat. Buenos Ayres 31 p. 135.

Myrmecophaga die Parotis, BROMAN Anat. Anz. Jena 50 p. 222.

†*Neotamandua magna* sp. n. Miocene La Plata, AMEGHINO Prim. Réun. Nac. soc. arg. Cienc. Nat. 1919 p. 152.

Orycteropus afer matschei Mikindani E. Africa p. 122 fig. 1, *observandus* Ussangire E. Africa, *lademanni* Wassi E. Africa, *ruwanensis* Ruwana S.E. of Victoria Nyanza p. 123, *adametzi* Kamerun p. 126, *subsp. n.*, GROTE Arch. Natg. Abt. A. 87 (7) 1921.

†*Pleurolestodon acutidens* p. 97, *avitus* p. 109 comparative studies, KRAGLIEVICH An. Mus. Nac. Hist. Nat. Buenos Aires 31.

†*Pseudolestodon myloides gallerii* subsp. n. "Pampeano superior" Buenos Aires with photographs of skull and mandible, KRAGLIEVICH An. Mus. Nac. Hist. Nat. Buenos Aires 31 p. 119.

Tatusia novemcincta primordial cranium, FAWCETT J. Anat. London 55 p. 187.

†*Thinobadistes segnis* foot-bones, HAY Proc. U. S. Nat. Mus. 59 p. 638.

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Extrakapsulare Nasenhöhleindrüsen, BROMAN Anat. Anz. Jena 50 p. 283.

Diprotodonts classification, POCKOCK Proc. Zool. Soc. 1921 p. 606.

Caenolestes monographic study, OSGOOD Field Mus. Publ. Zool. Ser. Chicago 14 p. 1; brain, HERRICK *Ibid.* p. 157; *obscurus* structure Ecuador, LÖNNBERG Ark. Zool. 14 No. 4 p. 72 pl. i; *caniventer* sp. n. Ecuador, ANTHONY Amer. Mus. Novit. No. 20 p. 6.

Didelphys carrying leaves with tail, PRAY J. Mammal. Baltimore 2 p. 109; *waterhousei* Tomes not a member of *cinerea* group, note on type, THOMAS Am. Mag. N.H. [9] 7 p. 522.

Marmosa elegans sponsoria p. 186 S.E. Jujuy; *bruchi* p. 519 Argentina, *verax* p. 520 Paraguay, *mimetra* p. 521 Ecuador subsp. et spp. n., THOMAS Ann. Mag. N.H. [9] 7.

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Notodelphys halli gen. et sp. n. S.E. Patagonia, THOMAS Ann. Mag. N.H. [9] 8 p. 137.

Notoryctes typhlops pouch embryos, JONES Trans. R. Soc. S. Aust. 55 p. 36.

Phascogale lorentzi venusta subsp. n. Dutch New Guinea, THOMAS Ann. Mag. N.H. [9] 8 p. 358.

Phascolarctos and allies external characters, Pocock Proc. Zool. Soc. 1921 p. 591; *cinereus* Gebiss mit vaskularisierten Schmelzorganen, BOLK. Anat. Anz. Jena 48 p. 328; anatomy, SONNTAG Proc. Zool. Soc. 1921 p. 547.

Pseudochirus caroli sp. n. N.W. New Guinea, THOMAS Ann. Mag. N.H. [9] 8 p. 357.

Trichosurus vulpecula anatomy, SONNTAG Proc. Zool. Soc. 1921 p. 547; habits, WOOD JONES J. Mammal. Baltimore 2 p. 187.

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LIST OF ABBREVIATIONS WITH TITLES OF JOURNALS CONTAINING PAPERS DEALING WITH MATTERS OF ZOOLOGICAL IMPORTANCE.

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- Aarsb. Selsk. Norsk Fiskerier Frem.*, Bergen.—Aarsberetning. Selskapet for de Norske Fiskeriers Fremme. Bergen. — Nor.
- Abh. Ak. Wiss., Berlin.*—Abhandlungen der kgl. Akademie der Wissenschaften zu Berlin. Berlin. — Ger.
- Abh. bayer. Ak. Wiss., München.*—Abhandlungen der bayerischen Akademie der Wissenschaften. München. — Ger.
- Abh. D. Seefischereiver., Berlin.*—Abhandlungen des deutschen Seefischereivereins. Berlin. — Ger.
- Abh. geol. Landesanst., Berlin.*—Abhandlungen der kgl. preussischen geologischen Landesanstalt. Berlin. — Ger.
- Abh. geol. Landesanst., Darmstadt.*—Abhandlungen der grossherzoglich hessischen geologischen Landesanstalt zu Darmstadt. Darmstadt. — Ger.
- Abh. Geol. RchsAnst., Wien.*—Abhandlungen der k. k. Geologischen Reichs-Anstalt. Wien. — Aus.
- Abh. Ges. Wiss., Göttingen.*—Abhandlungen der kgl. Gesellschaft der Wissenschaften zu Göttingen. Berlin. — Ger.
- Abh. Ges. Wiss., Leipzig.*—Abhandlungen der kgl. sächsischen Gesellschaft der Wissenschaften. Leipzig. — Ger.
- Abh. Heidelberg Ak. Wiss.*—Abhandlung der Heidelberger Akademie der Wissenschaften. Heidelberg. — Ger.
- Abh. Mus. Natk., Magdeburg.*—Museum für Natur- und Heimatkunde zu Magdeburg. Abhandlungen und Berichte. Magdeburg. — Ger.
- Abh. natf. Ges., Görlitz.*—Abhandlungen der naturforschenden Gesellschaft zu Görlitz. — Ger.
- Abh. natf. Ges., Halle.*—Abhandlungen der naturforschenden Gesellschaft zu Halle. Halle. — Ger.
- Abh. nathist. Ges., Nürnberg.*—Abhandlungen der naturhistorischen Gesellschaft zu Nürnberg. — Ger.
- Abh. natw. Ver., Bremen.*—Abhandlungen, hrsg. v. naturwissenschaftlichen Verein zu Bremen. — Ger.
- Abh. natw. Ver., Hamburg.*—Abhandlungen aus dem Gebiete der Naturwissenschaften, hrsg. vom naturwissenschaftlichen Verein in Hamburg. — Ger.
- Abh. Schweiz. Pal. Ges., Basel.*—Abhandlungen der schweizerischen paläontologischen Gesellschaft. Mémoires de la Société paléontologique suisse. Basel und Genf. 4to. — Swi.
- Abh. Senckenb. Ges., Frankfurt a. M.*—Abhandlungen hrsg. v. d. Senckenbergischen naturforschenden Gesellschaft. Frankfurt a. M. — Ger.
- Abh. Ver. Natk., Cassel.*—Abhandlungen und Bericht des Vereins für Naturkunde zu Cassel. Cassel. — Ger.
- Abh. zool. Mus., Dresden.*—Abhandlungen und Berichte des kgl. zoologischen und anthropologisch-ethnographischen Museums zu Dresden. Leipzig. — Ger.

- Abh. ZoolBot. Ges., Wien.*—Abhandlungen der Zoologisch-botanischen Gesellschaft in Wien. Jena. — Aus.
- Abstr. Papers and Rep. Brighton., Nat. Hist. Soc.*—Abstract of Papers and Report of the Brighton and Hove Natural History and Philosophical Society, Brighton. — U.K.
- Act. Acad. Nac. Cien., Cordoba.*—Actas de la Academia Nacional de Ciencias en Cordoba. — Arg.
- Act. Com. Univ. Dorpat., Tatu (= Dorpat).*—Acta et Commentationes Universitatis Dorpatensis, Tartu (= Dorpat), Esthonia.
- Act. Mus. hist. nat., Rouen.*—Actes du Muséum d'histoire naturelle. Rouen (Seine-Inférieure). — Fr.
- Act. Soc. Chile, Santiago.*—Actes de la Société scientifique du Chile, Santiago. — Chile.
- Act. Soc. Fauna et Fl. Fenn, Helsingfors.*—Acta Societatis pro Fauna et Flora Fennica. Helsingfors. — Fin.
- Act. Soc. helvét. Sci. Nat., Genève.*—Actes de la Société helvétique des sciences naturelles. Genève. — Swi. vide Verh. Schweiz. Natf. Ges.
- Act. soc. linn., Bordeaux.*—Actes de la société linnéenne de Bordeaux (Gironde). — Fr.
- Act. Soc. Sc. Fenn. Helsingfors.*—Acta Societatis Scientiarum Fennicae. Helsingfors. 4to. — Fin.
- Act. Univ., Lund.*—Acta Universitatis Lundensis.—Lunds Universitets Arsskrift. Lund. 4to. — Swe.
- Act. Zool., Stockholm.*—Acta Zoologica: Internationell Tidskrift för Zoologica. Stockholm. — Swe.
- Agric. Gaz. Canada, Ottawa.*—The Agricultural Gazette of Canada. Department of Agriculture, Ottawa. — Can.
- Agric. Gaz., Sydney.*—Agricultural Gazette of New South Wales, Sydney. — Australia.
- Agric. J. Ind., Calcutta.*—The Agricultural Journal of India, Calcutta. — Ind.
- Akad. Ert., Budapest.*—Akademiai Ertesitő, Budapest. [Akademischer Anzeiger, Budapest.] — Hun.
- Allatt. Közlem., Budapest.*—Állattani Közlemények, Budapest. [Zoologische Mittheilungen, Budapest.] — Hun.
- Amer. Breed. Mag., Washington.*—The American Breeders' Magazine, Washington, D.C. — U.S.
- Amer. Geol., Minneapolis.*—American Geologist, Minneapolis, Minnesota. — U.S.
- Amer. J. Anat., Philadelphia.*—The American Journal of Anatomy, published by the Wistar Institute of Anatomy and Biology, Philadelphia, Pa. [Includes Proc. Ass. Amer. Anat.] — U.S.
- Amer. J. Physiol., Baltimore.*—American Journal of Physiology, Baltimore. — U.S.
- Amer. J. Sci., New Haven, Conn.*—American Journal of Science, New Haven, Conn. — U.S.
- Amer. J. Tropical Med., Baltimore.*—The American Journal of Tropical Medicine, Baltimore Md. — U.S.
- Amer. Midl. Nat., Notre Dame, Indiana.*—The American Midland Naturalist, devoted to Natural History, primarily that of the Prairie States. Published by the University of Notre Dame, Notre Dame, Indiana. — U.S.

- Amer. Mus. Novit., New York.*—American Museum Novitates. New York — U.S.
- Amer. Nat., New York.*—The American Naturalist, New York, or Lancaster, Pa., formerly Boston. — U.S.
- Amtl. Ber. Natgesch. Samml., Danzig.*—Amtlicher Bericht über die Verwaltung der naturgeschichtlichen vorgeschichtlichen und volksundlichen Sammlungen des westpreussischen Provinzial-Museums. Danzig. — Ger.
- An. Ac. Cs., Habana.*—Anales de la Academia de ciencias, medicas, fisicas y naturales de la Habana. — Havana, Cuba.
- An. cient. Parag., Puerto Bertoni.*—Anales científicos Paraguayos, Puerto Bertoni. — Paraguay.
- An. Inst. Geol., Mexico.*—Anales del Instituto Geológico de Mexico. — Mex.
- An. Inst. Geol. Romaniei, Bucharest.*—An. Institutul Geologic al României. Bucarest. [Annales de l'Institut géologique de Roumanie. Bucharest.] — Rou.
- An. Mus. La Plata, Buenos Aires.*—Anales de Museo de La Plata, Buenos Aires. — Argent.
- An. Mus., Montevideo.*—Anales del Museo nacional de Montevideo, Montevideo. — Uruguay.
- An. Mus. Nac., Buenos Aires.*—Anales del Museo nacional de Buenos Aires. Buenos Aires. — Argent.
- An. Mus. Nac., Mexico.*—Anales del Museo Nacional de Mexico. Mex.
- An. Soc. Cient. Argent., Buenos Aires.*—Anales de la Sociedad científica argentina, Buenos Aires. — Argent.
- An. Univ. Chile, Santiago.*—Anales de la Universidad de Chile, Santiago. — Chile.
- An. Zool. Aplic., Santiago.*—Anales de Zoologica aplicada Santiago de Chile.
- Anal. Anz., Jena.*—Anatomischer Anzeiger. Centralblatt für die gesammte wissenschaftliche Anatomie. Jena. — Ger.
- Anat. Hefte, Wiesbaden.*—Anatomische Hefte, Wiesbaden. 1. Abth.: Arbeiten aus anatomischen Instituten. 2. Abth.: Ergebnisse der Anatomie und Entwicklungsgeschichte. — Ger.
- Anat. Rec., Philadelphia.*—The Anatomical Record, Philadelphia. (Published by the Wistar Institute of Anatomy and Biology.) — U.S.
- Andvari, Reykjavik.*—Andvari Timarit hins islenzka thjóðvinafjelags. Reykjavik. — Iceland.
- Anex. Mem. Inst. Butantan, S. Paulo.*—Anexos das Memórias do Instituto de Butantan, S. Paulo. — Braz.
- Ann. Acad. Române, Bucuresci.*—Annalele Societății Academice Române, Bucuresci (= Bucharest). — Rou.
- Ann. Acad. Sci., New York.*—Annals of the New York Academy of Sciences, New York. — U.S.
- Ann. Acad. Sci. Fenn., Helsingfors.*—Annales Academiae Scientiarum Fennicae, Helsingfors. — Fin.
- Ann. Applied Biol., Cambridge.*—The Annals of Applied Biology. The Official Organ of the Association of Economic Biologists. Cambridge, U.K.
- Ann. ass. nat., Levallois-Perret.*—Annales de l'association des naturalistes. Levallois Perret. — Fr.
- Ann. biol. lacustre, Bruxelles.*—Annales de Biologie Lacustre, Bruxelles. — Bel.
- Ann. Carnegie Mus., Pittsburg.*—Annals of the Carnegie Museum, Pittsburg, Pa. — U.S.

- Ann. Ent. Soc. Amer., Columbus, Ohio.*—Annals of the Entomological Society of America. Columbus, Ohio. — U.S.
- Ann. Fac. Sci., Marseille.*—Annales de la Faculté des Sciences de Marseille (Bouches du Rhône). — Fr.
- Ann. géol. Balkan., Belgrade.*—Annales géologiques de la péninsule Balkanique. Belgrade. — Servia.
- Ann. Géol. Pal., Turin.*—Annales de Géologie et de Paleontologie (Gregorio), Turin and Palermo. — Ital.
- Ann. Hist.-Nat. Mus. Nat. Hung., Budapest.*—Annales Historico-Naturelles Musei Nationalis Hungarici, Budapest. — Hun.
- Ann. Hist. Nat., Paris.*—Annales d'Histoire Naturelle. Paris. 4to. — Fr.
- Ann. Inst. océan., Monaco.*—Annales de l'Institut océanographique de Monaco. Paris. — Fr.
- Ann. Inst. Pasteur, Paris.*—Annales de l'Institut Pasteur. Paris. — Fr.
- Ann. Mag. Nat. Hist., London.*—Annals and Magazine of Natural History, London. — U.K.
- Ann. Museo Civ. st. nat., Genova.*—Annali del Museo Civico di storia naturale, Genova. — It.
- Ann. Mus. Col., Marseille.*—Annales du Musée Colonial de Marseille. — Fr.
- Ann. Mus. Congo, Bruxelles.*—État indépendant du Congo. Annales du Musée du Congo, publiées par ordre du Secrétaire d'état. Bruxelles. 4to. — Bel.
- Ann. Mus., Durban.*—Annals of the Durban Museum, Durban. — S. Afr.
- Ann. Mus. Hist. Nat., Marseille.*—Annales du Musée d'Histoire Naturelle de Marseille. 4to. — Fr.
- Ann. Natal Govt. Mus., Pietermaritzburg.*—Annals of the Natal Government Museum, Pietermaritzburg, printed in London. — S. Afr.
- Ann. NatHist. Hofmus., Wien.*—Annalen des k. k. Naturhistorischen Hofmuseums. Wien. — Aus.
- Ann. paléont., Paris.*—Annales de Paléontologie publiées sous la direction de Marcellin Boule. Paris. — Fr.
- Ann. Queensland Mus., Brisbane.*—Annals of the Queensland Museum, Brisbane. — Queensland.
- Ann. Ramb. Soc., Kilmarnock.*—Kilmarnock Glenfield Ramblers Society Annals. — U.K.
- Ann. Rep. Chester Soc. Nat. Sci.*—Annual Report and Proceedings of the Chester Society of Natural Science, Literature and Art, Chester. — U.K.
- Ann. Rep. Christ's Hosp. Nat. Hist. Soc., Horsham.*—Annual Report of the Christ's Hospital Natural History Society, Horsham. — U.K.
- Ann. Rep. E. Kent Nat. Hist. Soc., Canterbury.*—Annual Report and Transactions of the East Kent Scientific and Natural History Society, Canterbury. — U.K.
- Ann. Rep. Ent. Soc. Ont., Toronto.*—Annual Report of the Entomological Society of Ontario, Toronto. — Can.
- Ann. Rep. Florida Geol. Surv., Tallahassee.*—Annual Report Florida Geological Survey, Tallahassee, Fla. — U.S.
- Ann. Rep. Geol. Comm., Cape Town.*—Annual Report of the Geological Commission, Cape Town. — S. Afr.
- Ann. Rep. N. Staff. F. Cl., Stone.*—Annual report and transactions of the North Staffordshire Naturalists' Field Club and Archæological Society, Stone. — U.K.

- Ann. Rep. Nat. Hist. Soc., Peterborough.*—Annual Report of the Natural History, Scientific and Archæological Society, Peterborough. — U.K.
- Ann. Rep. Proc. Barrow Nat. F. Cl.*—Annual Report and Proceedings of the Barrow Naturalists' Field Club, Barrow-in-Furness. — U.K.
- Ann. Rep. Proc. Bristol Nat. Soc.*—Annual Report and Proceedings of the Bristol Naturalists' Society, Bristol. — U.K.
- Ann. Rep. Proc. Belfast Nat. Hist. Phil. Soc.*—Annual Report and Proceedings of the Belfast Natural History and Philosophical Society, Belfast. — U.K.
- Ann. Rep. R. Cornwall Polyt. Soc., Falmouth.*—Annual Report of the Royal Cornwall Polytechnic Society, Falmouth. — U.K.
- Ann. Rep. Smithsonian Inst., Washington.*—Smithsonian Institution. Annual Report of the Board of Regents, Washington, D.C. — U.S.
- Ann. Rep. Trans. Manchester Microsc. Soc.*—Annual Report and Transactions of the Manchester Microscopical Society, Manchester. — U.K.
- Ann. Rep. Trans. Nottingham Nat. Soc.*—Annual Report and Transactions of the Nottingham Naturalists' Society, Nottingham. — U.K.
- Ann. Rep. Trans. Plymouth Inst.*—Annual Reports and Transactions of the Plymouth Institution, Plymouth. — U.K.
- Ann. Rep. U.S. Nat. Mus., Washington.*—Smithsonian Institution. U.S. National Museum. Annual Report of the Board of Regents of the Smithsonian Institution, Washington, D.C. — U.S.
- Ann. Rep. Wellington Coll. Nat. Sci. Soc.*—Annual Report of the Wellington College Natural Science Society, Wellington Coll. — U.K.
- Ann. Rep. Yorks. Phil. Soc., York.*—Annual Report of the Council of the Yorkshire Philosophical Society, York. — U.K.
- Ann. S. Afric. Mus., Cape Town.*—Annals of the South African Museum, Cape Town. — S. Afr.
- Ann. sci. nat. (Zool.), Paris.*—Annales des sciences naturelles, paraît en deux parties : 1. Zoologie et Paléontologie, comprenant l'anatomie, la physiologie, la classification et l'histoire naturelle des animaux. Paris. — Fr.
- Ann. Scuola sup. agric., Portici.*—Annali della Scuola superiore di agricoltura. Portici. — It.
- Ann. Soc. agricult., Lyon.*—Annales de la société d'agriculture, science et industrie de Lyon (Rhône). — Fr.
- Ann. Soc. ent. Belgique, Bruxelles.*—Annales de la Société entomologique de Belgique. Bruxelles. — Bel.
- Ann. soc. ent., Paris.*—Annales de la société entomologique de France. Paris. — Fr.
- Ann. Soc. géol. Belgique, Liège.*—Annales de la Société géologique de Belgique. Liège. — Bel.
- Ann. soc. géol., Lille.*—Annales de la société géologique du Nord. Lille (Nord). — Fr.
- Ann. soc. linn., Lyon.*—Annales de la société linnéenne. Lyon (Rhône). — Fr.
- Ann. Soc. Palaeont. Russ., Petrograd.*—Annuaire de la Société Paleontologique de Russie, Petrograd. — Russ.
- Ann. Soc. roy. zool. malac., Bruxelles.*—Annales des séances de la Société royale zoologique et malacologique de Belgique. Bruxelles. [Comprend Bul. et Mém.] — Bel.

- Ann. Soc. sci., Bruxelles.*—Annales de la Société scientifique de Bruxelles (Louvain). — Bel.
- Ann. soc. sci. nat. Acad. bel.-let., la Rochelle.*—Annales de la section des sciences naturelles de l'Académie des Belles-lettres, sciences et arts de la Rochelle (Charente-Inférieure). — Fr.
- Ann. Transvaal Mus., Pretoria.*—Annals of the Transvaal Museum, Pretoria. — S. Afric.
- Ann. Trop. Med., Liverpool.*—Annals of tropical medicine and parasitology. Issued by the Liverpool School of Tropical Medicine. London and Liverpool. — U.K.
- Ann. Univ. Grenoble, Paris.*—Annales de l'Université de Grenoble, publiées par les Facultés de droit, des sciences et des lettres, et par l'école de médecine. Paris. — Fr.
- Ann. Univ., Jassy.*—Annales scientifiques de l'Université de Jassy. Jassy. — Roum.
- Ann. Univ., Lyon.*—Annales de l'Université. Lyon (Rhône). — Fr.
- Ann. Univ. Toscana, Pisa.*—Annali delle università Toscana, Pisa. — It.
- Ann. Zool. Mus. Polon. N.H. Warszawa.*—Annales Zoologici Musei Polonici Historiae Naturalis, Warszawa. — Pol.
- Année biol., Paris.*—Année biologique. Paris. — Fr.
- Annot. Zool. Jap., Tōkyō.*—Annotationes Zoologicae Japonenses. *European languages.* Tōkyō. — Jap.
- Annuario Museo zool., Napoli.*—Annuario del Museo zoologico della R Università di Napoli. — It.
- Anvari Junta Cienc. Nat., Barcelona.*—Junta de Ciències Naturals. Anvari, Barcelona. — Spain.
- Anz. Ak. Wiss., Wien.*—Anzeiger der Kaiserlichen Akademie der Wissenschaften. Mathematisch—Naturwissenschaftliche Klasse. — Aus.
- Anz Orn. Ges. Bay., München.*—Anzeiger der Ornithologischen Gesellschaft in Bayern, München. — Ger.
- Aquila, Budapest.*—Aquila, Budapest. — Hun.
- Arb. Anat. Inst. Univ., Sendai.*—Arbeiten aus dem anatomischen Institute der Kaiserlich-Japanischen Universität zu Sendai. — Jap.
- Arb. biol. Anst., Berlin.*—Arbeiten aus der biologischen Anstalt für Land- und Forstwirtschaft (vormals Biologische Abteilung für Land- und Forstwirtschaft am Kaiserl. Gesundheitsamte). Berlin. — Ger.
- Arb. D. Landw. Ges., Berlin.*—Arbeiten der deutschen Landwirthschafts-Gesellschaft. Berlin. — Ger.
- Arb. hirnanat. Inst. Zürich, Wiesbaden.*—Arbeiten aus dem hirnanatomischen Institut in Zürich. Wiesbaden. — Ger.
- Arb. Naturf.-Ver., Riga.*—Arbeiten des Naturforscher-Vereins zu Riga. — Latv.
- Arb. path. Inst., Tübingen.*—Arbeiten auf dem Gebiete der pathologischen Anatomie, u. Bakteriologie aus dem pathologisch-anatomischen Institut zu Tübingen. Braunschweig. — Ger.
- Arb. Zool. Inst. Univ., Wien.*—Arbeiten aus den Zoologischen-Instituten der Universität Wien und der Zoologischen Station in Triest. Wien. — Aus.
- Arch. anat. microsc., Paris.*—Archives d'anatomie microscopique, dir. Ranvier et Henneguy. Paris. — Fr.

- Arch. Anat. Physiol., Leipzig.*—Archiv für Anatomie und Physiologie, Leipzig.
1. Anatomische Abtheilung u. d. T.: Archiv für Anatomie und Entwicklungsgeschichte. 2. Physiologische Abtheilung u. d. T.: Archiv für Physiologie.
— Ger.
- Arch. biol., Liège-Paris.*—Archives de Biologie, Bambeke. Liège-Paris. — Fr.
- Arch. Biont., Berlin.*—Archiv für Biontologie, hrsg. v. d. Gesellschaft naturforschender Freunde in Berlin. Berlin. — Ger.
- Arch. EntwMech., Leipzig.*—Archiv für Entwicklungsmechanik der Organismen. Leipzig. — Ger.
- Arch. Esc. sup. Agric. e Med. vet., Nictheroy.*—Archivos da Escola superior de Agricultura e Medicina veterinaria, Nictheroy. — Brazil.
- Arch. exper. Path., Leipzig.*—Archiv für experimentelle Pathologie und Pharmakologie. Leipzig. — Ger.
- Arch. fisiol., Firenze.*—Archivio di fisiologia, Firenze. — It.
- Arch. ges. Physiol., Berlin.*—Pflüger's Archiv für die gesammte Physiologie des Menschen und der Thiere. Berlin. — Ger.
- Arch. ges. Psychol., Leipzig.*—Archiv für die gesammte Psychologie. Leipzig. — Ger.
- Arch. Gesch. Natw., Leipzig.*—Archiv für die Geschichte der Naturwissenschaften und der Technik. Leipzig. — Ger.
- Arch. Hydrobiol., Stuttgart.*—Archiv für Hydrobiologie und Planktonkunde (N. F. der Forschungsberichte a. d. biolog. Station zu Plön). Stuttgart. — Ger.
- Arch. Inst. Bact., Lisboa.*—Archivos do Instituto bacteriologico Camara Pestana, Lisboa. — Por.
- Arch. Inst. Pasteur Afr. N., Algiers.*—Archives des Instituts Pasteur de l'Afrique du Nord. Alternately Algiers and Tunis. — Algeria.
- Arch. Ital. Anat. Embr., Firenze.*—Archivio Italiano di Anatomia e di Embriologia, Firenze. — Ital.
- Arch. ital. biol., Torino.*—Archives italiennes de biologie, Torino. — It.
- Arch. Landesk. Sachsen, Halle.*—Archiv für Landes- und Volkskunde der Provinz Sachsen. Halle. — Ger.
- Arch. Math. Naturv., Kristiania.*—Archiv for Mathematik og Naturvidenskab, Kristiania. — Nor.
- Arch. Melit., Valetta.*—Archivum Melitense: Journal of the Malta Historical and Scientific Society. Valetta. — Malta.
- Arch. mikr. Anat., Bonn.*—Archiv für mikroskopische Anatomie und Entwicklungsgeschichte. Bonn. — Ger.
- Arch. Molluskenkunde, Frankfurt.*—Archiv für Molluskenkunde als Nachrichtenblatt der Deutschen Malakozoologischen Gesellschaft, Frankfurt-a.-M. — Ger.
- Arch. Mus. hist. nat., Lyon.*—Archives de Muséum d'histoire naturelle. Lyon (Rhône). — Fr.
- Arch. Mus., Rio de Janeiro.*—Archivos do Museu Nacional do Rio de Janeiro. — Braz.
- Arch. Mus. Teyler, Haarlem.*—Archives du Musée Teyler, Haarlem. — Hol.
- Arch. Natg., Berlin.*—Archiv für Naturgeschichte. Berlin. — Ger.
- Arch. Néerl. Sci. Soc. Holl., Haarlem.*—Archives Néerlandaises des Sciences exactes et naturelles publiées par la Société Hollandaise des Sciences. Haarlem. — Hol.

- Arch. parasit., Paris.*—Archives de parasitologie. Paris. — Fr.
- Arch. path. Anat., Berlin.*—Virchow's Archiv für pathologische Anatomie und Physiologie und für klinische Medicin. Berlin. — Ger.
- Arch. Protistenkunde, Jena.*—Archiv für Protistenkunde. Jena. — Ger.
- Arch. Rassenbiol., Leipzig.*—Archiv für Rassen- und Gesellschaftsbiologie einschließlich Rassen- und Gesellschaftshygiene. Leipzig. — Ger.
- Arch. Schiffs- Tropen-Hygiene, Leipzig.*—Archiv für Schiffs- und Tropen-Hygiene, Pathologie und Therapie exotischer Krankheiten. Leipzig. — Ger.
- Arch. Sci. Phys., Genève.*—Archives des sciences physiques et naturelles. Genève, Lausanne et Paris. — Swi.
- Arch. Tierheilk., Berlin.*—Archiv für wissenschaftliche und praktische Tierheilkunde. Berlin. — Ger.
- Arch. Ver. Natg., Güstrow.*—Archiv des Vereins der Freunde der Naturgeschichte in Mecklenburg. Güstrow. — Ger.
- Arch. Zellforschg, Leipzig.*—Archiv für Zellforschung. Leipzig. — Ger.
- Arch. Zool., Napoli.*—Archivio zoologico, Napoli. — It.
- Arch. zool., Paris.*—Archives de zoologie expérimentale et générale, fond. H. de Lacaze-Duthiers (avec "Notes et Revue"). Paris. — Fr.
- Ardea, Amsterdam.*—Ardea. Tijdschrift der Nederlandsche Ornithologische Vereeniging. — Hol.
- Ark. Kemi., Stockholm.*—Arkiv. för kemi, mineralogi och geologi utgifvet af K. Svenska Vetenskapsakademien i Stockholm. — Swe.
- Ark. Zool., Stockholm.*—Arkiv för zoologie utgifvet af K. Svenska Vetenskapsakademien i Stockholm. — Swe.
- Årsb. Sveriges Geol. Unders., Stockholm.*—Årsbok Sveriges Geologiska Undersökning, Stockholm. — Sv.
- Atti Acc. fisiocritici, Siena.*—Atti dell' Accademia dei fisiocritici in Siena. Siena. — It.
- Atti Acc. Gioenia, Catania.*—Atti dell' Accademia Gioenia di scienze naturali, Catania. — It.
- Atti Acc. Lincei, Roma.*—Atti della Reale Accademia dei Lincei; Rendiconti, Roma. — It.
- Atti Acc. Nuovi Lincei, Roma.*—Atti dell' Accademia pontificia dei Nuovi Lincei, Roma. — It.
- Atti Acc., Palermo.*—Atti dell' Accademia di scienze, lettere ed arti, Palermo. — It.
- Atti Acc. Pontaniana, Napoli.*—Atti dell' Accademia Pontaniana, Napoli. — It.
- Atti Acc. sc., Napoli.*—Atti della R. Accademia delle scienze fisiche e matematiche, Napoli. — It.
- Atti Acc. sc., Torino.*—Atti della R. Accademia delle scienze, Torino. — It.
- Atti Acc. ven.-trent., Padova.*—Atti dell' Accademia scientifica veneto-trentinistriana, Padova. — It.
- Atti Ist. ven., Venezia.*—Atti del R. Istituto veneto di scienze, lettere ed arti, Venezia. — It.
- Atti Mem. Acc., Padova.*—Atti e Memorie dell' Accademia di scienze, lettere ed arti, Padova. — It.

- Atti Soc. ital. prog. sc., Roma.*—Atti della Società italiana per il Progresso della Scienza, Roma. — It.
- Atti Soc. ital. sc. nat., Milano.*—Atti della Società italiana di scienze naturali, e del museo civico di Storia naturale, Milano. — It.
- Atti Soc. ligustica sc. nat. geogr., Genova.*—Atti della Società ligustica di scienze naturali e geografiche, Genova. — It.
- Atti Soc. nat. mat., Modena.*—Atti della Società dei naturalisti e matematici, Modena. — It.
- Atti Soc. studi malaria, Roma.*—Atti della Società per gli studi della malaria, Roma. — It.
- Atti Soc. tosc. sc. nat., Pisa.*—Atti (Memorie e Processi verbali) della Società toscana di scienze naturali, Pisa. — It.
- Atti Univ., Genova.*—Atti della R. Università di Genova. — It.
- Auk, Lancaster, Pa.*—The Auk (American Ornithologists' Union), Lancaster, Pa. — U.S.
- Austr. Av. Rec., London.*—The Austral Avian Record. A scientific Journal devoted primarily to the study of the Australian Avifauna. London. — U.K.
- Austr. Nat., Sydney.*—The Australian Naturalist. Journal and Magazine of the Naturalists' Society of New South Wales. Sydney. — Austral.
- Austral. Zool., Sydney, Australia.*—The Australian Zoologist; issued by the Royal Zoological Society of New South Wales. Sydney. — Austral.
- Avicult. Mag., London.*—The Avicultural Magazine, being the Journal of the Avicultural Society for the study of foreign and British birds, London. Printed at Hertford. — U.K.
- Barlangkutatas, Budapest.*—Barlangkutatas (Hohlenforschung), Budapest. — Hung.
- Beitr. geol. Karte Schweiz, Bern.*—Beiträge zur geologischen Karte der Schweiz. Bern. 4to. — Swi.
- Beitr. Pal. Geol. ÖstUng., Wien.*—Beiträge zur Paläontologie und Geologie Österreich-Ungarns und des Orients. Mitteilungen des Paläontologischen und Geologischen Institutes der Universität Wien. Wien. — Aus.
- Beitr. Zoogeogr. pal. Reg., München.*—Beiträge zur Zoogeographie der paläarktischen Region. Herausgeber von der Ornith. Ges. in Bayern. München. — Ger.
- Ber. biol. Versuchstat., München.*—Berichte aus der kgl. bayerischen biologischen Versuchstation in München. München. — Ger.
- Ber. bot.-zool. Ver., Danzig.*—Bericht des Westpreussischen botanischzoologischen Vereins. Mit Unterstützung des westpr. Provinzial-Landtages hrsg. Danzig. — Ger.
- Ber. Kongr. exp. Psych., Leipzig.*—Bericht über den Kongress für experimentelle Psychologie. Leipzig. — Ger.
- Ber. Ges. Wiss., Leipzig.*—Berichte über die Verhandlungen der kgl. sächsischen Gesellschaft der Wissenschaften. Leipzig. — Ger.
- Ber. natf. Ges., Bamberg.*—Bericht der naturforschenden Gesellschaft in Bamberg. — Ger.
- Ber. natf. Ges., Freiburg i. B.*—Berichte der naturforschenden Gesellschaft zu Freiburg i. B. Freiburg i. B. — Ger.
- Ber. Nath. Mus., Bern.*—Bericht der Staetisches Naturhistorisches Museum, Bern. — Swi.

- Ber. natw. Ges., Chemnitz.*—Bericht der naturwissenschaftlichen Gesellschaft zu Chemnitz. Chemnitz. — Ger.
- Ber. Natw. Med. Ver., Innsbruck.*—Berichte des Naturwissenschaftlich-Medizinischen Vereines in Innsbruck. Innsbruck. — Aus.
- Ber. natw. Ver., Augsburg.*—Bericht des naturwissenschaftlichen Vereins für Schwaben und Neuburg, früher naturhistorischen Vereins in Augsburg. Augsburg. — Ger.
- Ber. natw. Ver., Passau.*—Bericht des naturwissenschaftlichen Vereins zu Passau. Passau. — Ger.
- Ber. natw. Ver., Regensburg.*—Berichte des naturwissenschaftlichen (früher zoologisch-mineralogischen) Vereins zu Regensburg. Regensburg. — Ger.
- Ber. oberhess. Ges. Natk., Giessen.*—Bericht der oberhessischen Gesellschaft für Natur- und Heilkunde. Giessen. — Ger.
- Ber. Senckenb. Ges., Frankfurt a. M.*—Bericht der Senckenbergischen naturforschenden Gesellschaft in Frankfurt a. M. — Ger.
- Ber. Ver. Natk., Hof.*—Bericht des nordoberfränkischen Vereins für Natur-, Geschichts- und Landeskunde. Hof. — Ger.
- Ber. Ver. Natk., Offenbach.*—Bericht über die Thätigkeit des Offenbacher Vereins für Naturkunde. Offenbach a. M. — Ger.
- Berajah, Leipzig.*—Berajah, Zoographia infinita. Leipzig. — Ger.
- Bergens Mus. Aarb.*—Bergens Museums Aarbog, Bergen. — Nor.
- Bergens Mus., Aarsb.*—Bergens Museum Aarsberetning, Bergen. — Nor.
- Bergens Mus. Skr.*—Bergens Museums Skrifter. Ny Raekke. Bergen. — Nor.
- Berliner ent. Zs.*—Berliner entomologische Zeitschrift, hrsg. v. d. entomologischen Verein zu Berlin. Berlin. — Ger.
- Berliner thierärztl. Wochenschr.*—Berliner thierärztliche Wochenschrift. Berlin. Nebst Beilage: Mittheilungen für Veterinärbeamte. — Ger.
- Bibliogr. anat., Nancy.*—Bibliographie anatomique. Paris-Nancy. — Fr.
- Bidr. F. Vet. Soc., Helsingfors.*—Bidrag till kännedom om Finlands Natur och Folk, utgifna af Finska Vetenskaps-Societeten. Helsingfors. — Fin.
- Bien. Rep. Missouri Bur. Geol. and Mines, Jefferson City, Mo.*—Biennial Report of the State Geologist, Missouri Bureau of Geology and Mines, Jefferson City, Mo. — U.S.
- Bidr. Dierk., Amsterdam.*—Bijdragen tot de dierkunde uitgegeven door het Koninklijk Zoologisch genootschap Natura Artis Magistra te Amsterdam. Leiden. — Hol.
- Biochem. Journ., Cambridge.*—The Biochemical Journal. Edited for the Biochemical Society. Cambridge. — U.K.
- Biochem. Zs., Berlin.*—Biochemische Zeitschrift. Berlin. — Ger.
- Biol. Bul., Woods' Hole, Mass.*—Biological Bulletin, Marine Biological Laboratory. Woods' Hole, Mass. — U.S.
- Biol. Meddel. K. Danske Videns. Selsk., Kjobenhavn.*—Det. Kgl. Danske Videnskabernes Selskab. : Biologiske Meddelelser. Kjobenhavn. Denmark. — Den.
- Biol. Zentralbl., Leipzig.*—Biologisches Zentralblatt. Leipzig [früher Berlin]. — Ger.
- Biologica, Torino.*—Biologica, Raccolta di Scritti di Biologia, Torino. — It.

- Biometrika, Cambridge*.—*Biometrika, Cambridge*. — U.K.
- Bird-Lore, Harrisburg, Pa.*—*Bird-Lore, Harrisburg, Pa.* — U.S.
- Bird Notes, Ashbourne*.—*Bird Notes: The Journal of the Foreign Bird Club. Ashbourne*. — U.K.
- Bl. Aquarienkunde, Stuttgart*.—*Blätter für Aquarien- und Terrarienkunde*, hrsg. v. W. Wolterstorff. Stuttgart [früher Magdeburg]. — Ger.
- Bol. Ac. Córdoba, Buenos Aires*.—*Boletín de la Academia nacional de Ciencias en Córdoba, Buenos Aires*. — Argent.
- Bol. Est. Biol., Mexico*.—*Boletín de la Direccion de Estudios Biologicos. Mexico*. — Mex.
- Bol. Inst. Geol., Mexico*.—*Boletín del Instituto Geológico de Mexico*. — Mex.
- Bol. Inst. Geol. Esp., Madrid*.—*Boletín del Instituto Geológico de España, Madrid*. — Spain.
- Bol. Mus. Goeldi, Pará*.—*Boletim do Museu Goeldi de Historia natural e ethnographia (Museu paraense), Pará*. — Braz.
- Bol. Mus. Nac., Santiago*.—*Boletim de Museo Nacional de Chile, Santiago*. — Chile.
- Bol. R. Ac. Cs., Barcelona*.—*Boletín de la Real Academia de Ciencias y Artes de Barcelona. Barcelona*. — Spain.
- Bol. soc. Arag., Zaragoza*.—*Boletín de la Sociedad Aragonesa de Ciencias Naturales, Zaragoza*. — Spain.
- Bol. Soc. ent. Brasil, Rio de Janeiro*.—*Boletim da Sociedade Entomologica do Brasil, Rio de Janeiro*. — Brazil.
- Bol. Soc. Ent. España, Zaragoza*.—*Boletín de la Sociedad Entomologica de España, Zaragoza*. — Spain.
- Bol. Soc. Esp. Hist. Nat., Madrid*.—*Boletín de la Real Sociedad Española de Historia Natural, Madrid*. — Spain.
- Boll. Acc. Gioenia, Catania*.—*Bollettino delle sedute dell' Accademia Gioenia di scienze naturali, Catania*. — It.
- Boll. Comitato geol., Roma*.—*Bollettino del R. Comitato geologico, Roma*. — It.
- Boll. Lab. zool., Portici*.—*Bollettino del Laboratorio di Zoologia generale e agraria della R. Scuola superiore d'Agricoltura in Portici. Portici*. — It.
- Boll. Musei zool. anat. comp., Torino*.—*Bollettino dei Musei di zoologia e di anatomia comparata della R. Università, Torino*. — It.
- Boll. Soc. geol. ital., Roma*.—*Bollettino della Società geologica italiana, Roma*. — It.
- Boll. Soc. nat., Napoli*.—*Bollettino della Società di naturalisti, Napoli*. — It.
- Boll. Soc. Tic. Sci. Nat., Locarno*.—*Bollettino della Società ticinese di Scienze Naturali. Locarno*. — Swi.
- Boll. Soc. Ent. Ital., Genova*.—*Bollettino della Società Entomologica Italiana, Genova*. — It.
- Boll. Soc. zool. ital., Roma*.—*Bollettino della Società zoologica italiana, Roma*. — It.
- Brit. Birds, London*.—*British Birds, an illustrated magazine devoted to the birds on the British list. London*. — U.K.
- Brooklyn Mus. Quarterly*.—*The Brooklyn Museum Quarterly. Brooklyn Institute of Arts and Sciences. Brooklyn, N.Y.* — U.S.

- Broteria, Lisboa*.—*Broteria*. Revista de ciencias naturales do Collegio de S. Fiel. Lisboa. — Por.
- Bul. Acad. Roumaine, Bucarest*.—Bulletin de l'Académie Roumaine, Bucarest. — Roum.
- Bul. Acad. roy., Bruxelles*.—Bulletin de la classe des sciences de l'Académie royale des sciences, des lettres et des beaux arts de Belgique. Bruxelles. — Bel.
- Bul. Agric. Res. Inst. Pusa, Calcutta*.—Bulletin Agricultural Research Institute, Pusa. Published at Calcutta. — Ind.
- Bul. Amer. Mus. Nat. Hist., New York*.—Bulletin of the American Museum of Natural History, New York, N.Y. — U.S.
- Bul. Amer. Paleont. Ithaca, N.Y.*—Bulletin of American Palaeontology, Ithaca, N.Y. — U.S.
- Bul. biol. France Belgique, Paris*.—Bulletin biologique de la France et de la Belgique. Paris. — Fr.
- Bul. Biol. Soc., Washington*.—Bulletin of the Biological Society of Washington, D.C. — U.S.
- Bul. Brit. Ornith. Cl., London*.—Bulletin of the British Ornithologists' Club, London. — U.K.
- Bul. Brooklyn Ent. Soc., Brooklyn*.—Bulletin of the Brooklyn Entomological Society. Brooklyn, N.Y. — U.S.
- Bul. Buffalo Soc. Nat. Sci.*—Bulletin of the Buffalo Society of Natural Sciences, Buffalo, N.Y. — U.S.
- Bul. Bureau Bio.-Tech., Leeds*.—Bulletin: Bureau of Bio-Technology, Leeds. — U.K.
- Bul. Bur. Fish., Washington*.—Department of Commerce and Labor. Bulletin of the Bureau of Fisheries, Washington, D.C. — U.S.
- Bul. carte géol. France, Paris*.—Bulletin des services de la carte géologique de France et des topographies souterraines. Paris. — Fr.
- Bul. Canada Dept. Mines, Ottawa*.—Bulletin: Canada Department of Mines. Biological Series. Geological Series. Ottawa. — Can.
- Bul. Charleston Mus.*—Bulletin of the Charleston Museum, Charleston, S.C. — U.S.
- Bul. Chicago Acad. Sci.*—Bulletin of the Chicago Academy of Sciences, Chicago, Ill. — U.S.
- Bul. Com. Géol. Finl., Helsingfors*.—Bulletin de la Commission Géologique de Finlande. Helsingfors. — Fin.
- Bul. Comm. Intern. Expl. Sci. Mer. Méditer., Monaco*.—Bulletin de la Commission internationale pour l'exploration scientifique de la mer Méditerranée. Monaco.
- Bul. Connecticut State Geol. Nat. Hist. Surv., Hartford*.—Connecticut State Geological and Natural History Survey. Bulletin. Hartford. — U.S.
- Bul. Dom. Mus., Wellington, N.Z.*—Bulletin Dominion Museum of New Zealand, Wellington. — N.Z.
- Bul. Ent. Research, London*.—Bulletin of entomological research. London. — U.K.
- Bul. Essex Co. Orn. Cl., Salem, Mass.*—Bulletin of Essex County Ornithological Club, Salem, Mass. — U.S.
- Bul. Exp. Sta. Hawaiian Sug. Pl. As. Div. Ent., Honolulu*.—Division of Entomology. Bulletin. Report of the work of the Experiment Station of the Hawaiian Sugar Planters' Association. Honolulu. — Hawaiian Is.

- Bul. Geol. Inst., Upsala.*—Bulletin of the Geological Institution of the University of Upsala, ed. Hj. Sjögren. Upsala. — Swe.
- Bul. Geol. Soc. Amer., New York.*—Bulletin of the Geological Society of America, New York. — U.S.
- Bul. Geol. Surv. Alabama, University P.O.*—Bulletin of the Geological Survey of Alabama, University P.O. — U.S.
- Bul. Geol. Surv. Georgia, Atlanta.*—Bulletin of the Geological Survey of Georgia, Atlanta. — U.S.
- Bul. Geol. Surv. Ohio, Columbus.*—Geological Survey of Ohio. Bulletin. Columbus. Ohio. — U.S.
- Bul. Geol. Surv. Vict., Melbourne.*—Victoria, Department of Mines. Bulletins of the Geological Survey, Melbourne. — Austral.
- Bul. Geol. Surv. W. Austral., Perth.*—Bulletin of the Geological Survey of Western Australia, Perth. — Austral.
- Bul. Hill Mus., Witley.*—The Bulletin of the Hill Museum. A Magazine of Lepidopterology. Issued at the Hill Museum, Witley, Surrey. Publ. London. — U.K.
- Bul. hydrogr. explor. mer., Copenhagen.*—Conseil permanent international pour l'exploration de la mer. Bulletin hydrographique, Copenhagen. — Den.
- Bul. Inst. Egypt, Cairo.*—Bulletin de l'Institut Egyptien. Le Caire. — Egypt.
- Bul. Inst. Nat., Genève.*—Bulletin de l'Institut national genevois. Genève. — Swi.
- Bul. Inst. Ocean., Monaco.*—Bulletin de l'Institut océanographique de Monaco. — Mon.
- Bul. Inst. Pasteur, Paris.*—Bulletin de l'Institut Pasteur, Paris. — Fr.
- Bul. Inst. Zool. Univ., Palermo.*—Buletino dell' Instituto zoologico della R. Università di Palermo. — It.
- Bul. Intern. Acad., Kraków.*—Bulletin International de l'Académie des Sciences de Cracovie, classe des Sciences mathématiques et naturelles, Cracovie. — Pol.
- Bul. Kentucky Geol. Surv., Louisville.*—Kentucky Geological Survey Bulletin. Louisville, Ky. — U.S.
- Bul. Kolon. Mus., Haarlem.*—Bulletin van het Koloniaal Museum te Haarlem, Amsterdam. — Hol.
- Bul. mém. soc. anat., Paris.*—Bulletin et mémoires de la société anatomique de Paris. — Fr.
- Bul. Murith., Aigle.*—Bulletin de la Murithienne, Société valaisanne des sciences naturelles. Aigle, Bex, etc. — Swi.
- Bul. Mus. Comp. Zool., Cambridge, Mass.*—Bulletin of the Museum of Comparative Zoology at Harvard College. Cambridge, Mass. — U.S.
- Bul. Muséum, Paris.*—Bulletin du Muséum d'Histoire Naturelle, Paris. — Fr.
- Bul. N. Carolina Geol. Econ. Surv., Raleigh, N.C.*—Bulletin: North Carolina Geological and Economic Survey. Raleigh, N.C. — U.S.
- Bul. N. Zeal. Dept. Agric., Wellington.*—Bulletin of the New Zealand Department of Agriculture. Wellington. — N.Z.
- Bul. Nat. Hist. Soc. New Brunsw., St. John's, N.B.*—Bulletin of the Natural History Society of New Brunswick, St John's, New Brunswick. — Can.

- Bul. Nat. Hist. Surv. Illinois, Urbana, Ill.*—Bulletin, Natural History Survey, State of Illinois. Urbana, Ill. — U.S.
- Bul. New York State Mus. Albany.*—New York State Education Department, New York State Museum Bulletin, Albany, N.Y. — U.S.
- Bul. Oklahoma Geol. Surv., Norman.*—Oklahoma Geological Survey. Bulletin, Norman, Okla. — U.S.
- Bul. Phil. Soc., Charlottesville, Va.*—Bulletin of the Philosophical Society, University of Virginia, Charlottesville, Va. — U.S.
- Bul. Publ. Mus. Milwaukee, Wis.*—Bulletin of the Public Museum of the City of Milwaukee, Wis. — U.S.
- Bull. S. Afr. Biol. Soc., Pretoria.*—Bulletin of the South African Biological Society Pretoria. — S. Afr.
- Bul. S. Cal. Acad. Sci., Los Angeles.*—Bulletin of the Southern California Academy of Sciences, Los Angeles. — U.S.
- Bul. S. Dak. Geol. Surv., Vermilion.*—South Dakota Geological Survey. Bulletin, Vermilion, S.D. — U.S.
- Bul. Sci. Lab. Denison Univ., Granville, Ohio.*—Bulletin of the Scientific Laboratories of Denison University, Granville, Ohio. — U.S.
- Bul. soc. acad., Boulogne-sur-mer.*—Bulletin Trimestriel : Société Académique de l'arrondissement de Boulogne-sur-mer. — Fr.
- Bul. soc. amis sci. nat., Rouen.*—Bulletin de la société des amis des sciences naturelles de Rouen (Seine-Inférieure). — Fr.
- Bul. soc. ent., Paris.*—Bulletin de la société entomologique de France. Paris. — Fr.
- Bul. Soc. Ent. Egypte, Cairo.*—Bulletin de le Société Entomologique d'Égypte. Le Caire. — Egypt.
- Bul. soc. étud. sci., Angers.*—Bulletin de la société d'études scientifiques d'Angers (Maine-et-Loire). — Fr.
- Bul. soc. étud. sci., Carcassonne.*—Bulletin de la société d'études scientifiques de l'Aude. Carcassonne (Aude). — Fr.
- Bul. soc. étud. sci. nat., Béziers.*—Bulletin de la société d'étude des sciences naturelles de Béziers (Hérault). — Fr.
- Bul. soc. étud. sci. nat., Elbeuf.*—Bulletin de la société d'études des sciences naturelles d'Elbeuf (Seine-Inférieure). — Fr.
- Bul. soc. étud. sci. nat., Nîmes.*—Bulletin de la société d'études des sciences naturelles. Nîmes (Gard). — Fr.
- Bul. Soc. Geol. Min. Bretagne, Rennes.*—Bulletin de la Société Géologique et Minéralogique de Bretagne, Rennes. —Fr.
- Bul. soc. géol. Normand., Le Havre.*—Bulletin de la société géologique de Normandie. Le Havre (Seine-Inférieure). — Fr.
- Bul. soc. géol. paléont. hydr., Bruxelles.*—Bulletin de la Société belge de géologie, de paléontologie et d'hydrologie. Bruxelles. [Comprend Fr. verb. et Mém.] — Bel.
- Bul. soc. géol., Paris.*—Bulletin de la société géologique de France. Paris. — Fr.
- Bul. Soc. hist. nat., Alger.*—Bulletin de la Société d'histoire naturelle de l'Afrique du Nord. Alger (printed at Largentiere, France). — Fr.

- Bul. soc. hist. nat., Autun.*—Bulletin de la société d'histoire naturelle. Autun (Saône-et-Loire). — Fr.
- Bul. soc. hist. nat., Chambéry.*—Bulletin de la société d'histoire naturelle. Chambéry (Savoie). — Fr.
- Bul. Soc. Hist. Nat., Colmar.*—Bulletin de la Société d'histoire naturelle de Colmar Colmar. — Fr.
- Bul. soc. hist. nat., Metz.*—Bulletin de la société d'histoire naturelle de Metz. Metz. — Fr.
- Bul. soc. hist. nat., Toulouse.*—Bulletin de la société d'histoire naturelle de Toulouse (Haute-Garonne). — Fr.
- Bul. Soc. Jersiaise, St. Héliér.*—Bulletin Société Jersiaise, St. Héliér, Jersey, U.K.
- Bul. soc. linn., Amiens.*—Bulletin de la société linnéenne du nord de la France. Amiens (Somme). — Fr.
- Bul. soc. linn., Caen.*—Bulletin de la société linnéenne de Normandie. Caen (Calvados). — Fr.
- Bul. Soc. Linn., Le Havre.*—Bulletin de la Société Linnéenne de la Seine Maritime, Le Havre. — Fr.
- Bul. soc. linn., Marseille.*—Bulletin de la Société linnéenne de Province, Marseille. — Fr.
- Bul. Soc. Lépidopt., Genève.*—Bulletin de la Société lépidoptérologique de Genève. — Swi.
- Bul. Soc. Méd., Jassy.*—Bulletin de la Société des Médecins et Naturalistes de Jassy. Jassy. — Rou.
- Bul. Soc. Nat., Luxembourg.*—Bulletins Mensuels. Société des Naturalistes luxembourgeois. Luxembourg. — Lux.
- Bul. soc. nat. acclim., Paris.*—Bulletin de la société nationale d'acclimatation de France (Revue des sciences naturelles appliquées). Paris. — Fr.
- Bul. soc. philom., Paris.*—Bulletin de la société philomatique de Paris. — Fr.
- Bul. Soc. Port. Sc. Nat., Lisbonne.*—Bulletin de la Société Portugaise des Sciences naturelles. Lisbonne. — Port.
- Bul. Soc. Sci., Bucharest.*—Buletinul Societatii de Sciinte din Bucuresci-România. (Bulletin de la Société de Sciences Bucarest-Roumanie) Bucuresci, [Bucharest]. — Rou.
- Bul. soc. sci., Nancy.*—Bulletin des séances de la société des sciences de Nancy et de la réunion biologique de Nancy (Meurthe-et-Moselle). — Fr.
- Bul. soc. sci. hist. nat., Auxerre.*—Bulletin de la société des sciences historiques et naturelles de l'Yonne. Auxerre (Yonne). — Fr.
- Bul. soc. sci. hist. nat., Semur.*—Bulletin de la société des sciences historiques et naturelles. Semur en Auxois (Côte d'Or). — Fr.
- Bul. soc. sci. méd., Rennes.*—Bulletin de la société scientifique et médicale de l'Ouest. Rennes (Ille-et-Vilaine). — Fr.
- Bul. soc. sci. nat., Chalon-sur-Saône.*—Bulletin de la société des sciences naturelles de Saône-et-Loire. Chalon-sur-Saône (Saône-et-Loire). — Fr.
- Bul. Soc. Sci. Nat., Fribourg.*—Bulletin de la Société fribourgeoise des sciences naturelles. Fribourg. — Swi.
- Bul. Soc. Sci. Nat., Lausanne.*—Bulletin de la Société vaudoise des sciences naturelles. Lausanne. — Swi.
- Bul. Soc. Sci. nat. Maroc, Rabat.*—Bulletin de la Société des Sciences naturelles du Maroc. Rabat and Paris. — Morocco.

- Bul. soc. sci. nat., Nantes.*—Bulletin de la société des sciences naturelles de l'Ouest. Nantes (Loire-Inférieure). — Fr.
- Bul. Soc. Sci. Nat., Neuchâtel.*—Bulletin de la Société neuchâteloise des sciences naturelles. Neuchâtel. — Swi.
- Bul. Soc. Sci. Seine-et-Oise, Versailles.*—Bulletin de la Société des Science de Seine-et-Oise. Versailles. — Fr.
- Bul. soc. stat. sci. nat. arts ind., Grenoble.*—Bulletin de la société de statistique, des sciences naturelles et des arts industriels de l'Isère. Grenoble (Isère). — Fr.
- Bul. Soc. Stiinte, Cluj.*—Buletinul Societății de Stiințe din Cluj.—Bulletin de la Société des Sciences de Cluj, Roum. — Roum.
- Bul. Soc. Stor.-Scient. Maltese* vide *Arch. Melit. Valetta*.
- Bul. soc. zool., Paris.*—Bulletin de la société zoologique de France. Paris. — Fr.
- Bul. Soc. Zool., Genève.*—Bulletin de la Société Zoologique de Genève. Genève. — Swi.
- Bul. stat. biol. Arcachon, Bordeaux.*—Bulletin de la station biologique d'Arcachon. Bordeaux. — Fr.
- Bul. Tennessee Geol. Surv. Nashville.*—State of Tennessee. State Geological Survey Bulletin. Nashville, Tennessee. — U.S.
- Bul. Terr. Papua, Melbourne.*—Bulletin of the Territory of Papua. Melbourne. — Austral.
- Bul. U.S. Dept. Agric., Washington.*—Bulletin: United States Department of Agriculture, Washington, D.C. — U.S.
- Bul. U.S. Nat. Mus., Washington.*—Smithsonian Institution. U.S. National Museum. Bulletin, Washington, D.C. — U.S.
- Bul. Univ. Montana, Missoula.*—Bulletin University of Montana. Missoula, Mont. — U.S.
- Bull. Univ. Texas, Austin.*—Bulletin of the University of Texas, Austin, Texas. — U.S.
- Bul. Wis. Nat. Hist. Soc., Milwaukee.*—Bulletin of the Wisconsin Natural History Society, Milwaukee. — U.S.
- Bul. Wisconsin Geol. Nat. Hist. Surv., Madison.*—Wisconsin Geological and Natural History Survey, Bulletin. Madison. — U.S.
- Butll. Inst. Catal. N.H., Barcelona.*—Butlletí de la Institució Catalana d'Història Natural. Barcelona. — Sp.
- C. R. Acad. sci., Paris.*—Comptes rendus hebdomadaires des séances de l'Académie des sciences. Paris. — Fr.
- C. R. ass. franç. avanc. sci., Paris.*—Comptes rendus de l'association française pour l'avancement des sciences. Paris. — Fr.
- C. R. soc. biol., Paris.*—Comptes rendus hebdomadaires des séances et mémoires de la société de biologie. Paris. — Fr.
- C. R. Soc. Phys. Hist. Nat., Genève.*—Compte rendu des séances de la société de physique et d'histoire naturelle de Genève. Genève. — Swi.
- Cairo Sci. J.*—Cairo Scientific Journal, Cairo. — Egypt.
- Canad. Entomol., Orillia, Ont.*—Canadian Entomologist, Orillia, Ont. [formerly Toronto], Can.
- Canad. Field Nat., Ottawa.*—Canadian Field Naturalist, Ottawa, Can.
- Canad. Rec. Sci., Montreal.*—The Canadian Record of Science (Organ of the Montreal Natural History Society), Montreal. — Can.

- Capita Zool., s'Gravenhage.*—*Capita Zoologica. Verhandeligen op systematisch-zoologisch Gebeid. s'Gravenhage.* — Holl.
- Carnegie Inst. Pub., Washington.*—Carnegie Institution Publications. Washington, D.C. — U.S.
- Carnegie Inst. Year Book, Washington.*—Carnegie Institution of Washington. Year Book, Washington, D.C. — U.S.
- Carniola, Ljubjani (i.e. Laibach).*—Carniola, Izvestja Muzejskega drustva za kranjsko [=Mitteilungen des Museal-Vereins für Krain]. Ljubjani (=Laibach). — Yugo Slav.
- Čas. Mor. Mus. Zemsk., Brunn.*—Časopis Moravského Musea Zemského. Red. Frant. Rypáček, Frant. Šujan. Vydává Moravská Musejní Společnost Brno [Zeitschrift des Mährischen Landesmuseums, hrsg. von der Mährischen Museums-Gesellschaft. Brunn]. — Checho-Slov.
- Casopis, Praze.*—Casopis Československé Společnosti entomologické. Acta societatis entomologicæ Cechosloveniae. Praze (Prague), Checho-Slov.
- Cassinia, Philadelphia.*—Cassinia: Proceedings of the Delaware Valley Ornithological Club of Philadelphia, Philadelphia, Pa. — U.S.
- Cellule, Louvain.*—La Cellule. Recueil de cytologie et d'histologie générale. Lierre et Louvain. — Bel.
- Centralbl. Bakt., Jena.*—Centralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten. 1. Abth.: Medicinschhygienische Bakteriologie. 2. Abth.: Allgemeine, landw.-technol. etc. Bakteriologie. Jena. — Ger.
- Centralbl. Min., Stuttgart.*—Centralblatt für Mineralogie, Geologie und Paläontologie, Stuttgart. — Ger.
- Cold Spring Harbor Monog., Brooklyn.*—Cold Spring Harbor Monographs. Brooklyn Institute of Arts and Sciences. Brooklyn, N.Y. — U.S.
- Colorado Coll. Pub. Sci. Ser., Colo. Springs.*—Colorado College Publications. Science Series. Colorado Springs. — U.S.
- Com. Paleont. Mus. Mineral. Geol. Univ., Copenhagen.*—Communications Paleontologiques. Museum de Minéralogie et de Géologie de l'Université de Copenhagen. Kjøbenhavn. — Den.
- Com. Ser. Geol., Lisboa.*—Comunicações da Comissão do serviço geológico de Portugal. Lisboa. — Por.
- Condor, Berkeley, Cal.*—Condor. (Cooper Ornithological Club), Berkeley, Cal. — U.S.
- Contr. Canad. Biol., Ottawa.*—Contributions to Canadian Biology, being Studies from the Marine Biological Stations of Canada. Ottawa. — Can.
- Copeia New York.*—Copeia. Published to advance the Science of cold-blooded Vertebrates, New York. N.Y. U.S.
- D. ent. Zs., Berlin.*—Deutsche entomologische Zeitschrift, hrsg. v. d. deutschen entomologischen Gesellschaft. Berlin. — Ger.
- D. ent. Zs. Iris, Berlin.*—Deutsche entomologische Zeitschrift, hrsg. vom entomologischen Verein Iris in Dresden. Berlin. — Ger.
- Dennison Univ. Bul., Granville, Ohio.*—Dennison University Bulletin. Journal of the Scientific Laboratories, Granville, Ohio. — U.S.
- Danmarks Geol. Unders., Kjøbenhavn.*—Danmarks geologiske Undersøgelser, Kjøbenhavn. — Den.

- Dansk Orn. Tids.*, Kjöbenhavn.—Dansk ornithologisk Forenings Tidsskrift. Kjöbenhavn. — Den.
- Denkschr. Ak. Wiss., Wien.*—Denkschriften der Kaiserlichen Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Klasse. Wien. — Aus.
- Denkschr. med.-nat. Ges., Jena.*—Denkschriften der medicinisch-naturwissenschaftlichen Gesellschaft zu Jena. — Ger.
- Dōbuts. Z., Tōkyō.*—Dōbutsugaku Zasshi. [Zoological Magazine.] Tōkyō, Japan. — Jap.
- Echange, Moulins.*—L'Echange. Revue linnéenne, organe des naturalistes de la région lyonnaise, contenant les demandes d'échange, d'achat . . . de livres, collections ou objets d'histoire naturelle. Moulins. — Fr.
- Eclogæ Geol. Helvet., Lausanne.*—Eclogæ geologicæ Helvetiæ. Recueil périodique de la Société géologique suisse. Mitteilungen der schweizerischen geologischen Gesellschaft. Lausanne. — Swi.
- Ectoparasites, Tring.*—Ectoparasites, Tring; printed in London. — U.K.
- Emu, Melbourne.*—The Emu, Official Organ of the Royal Australian Ornithologists' Union. Melbourne. — Austral.
- Ent. Anz., Wien.*—Entomologischer Anzeiger. Wien. — Austr.
- Ent. Ber., Helder.*—Entomologische Berichten uitgegeven door de Nederlandsche entomologische Vereeniging. — Hol.
- Ent. Bl., Berlin.*—Entomologische Blätter. Zeitschrift für Biologie und Systematik der Käfer. Berlin. — Ger.
- Ent. Mag., London.*—The Entomologists' Monthly Magazine. London. — U.K.
- Ent. Medd., Kjöbenhavn.*—Entomologiske Meddelelser, Kjöbenhavn. — Den.
- Ent. Mitt., Berlin.*—Entomologische Mitteilungen, hrsg. v. Verein zur Förderung des deutsch. entomol. Museums. Berlin. — Ger.
- Ent. News, Philadelphia.*—Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia. American Entomological Society, Philadelphia, Pa. — U.S.
- Ent. Rdsch., Stuttgart.*—Entomologische Rundschau mit Anzeigenbeilage: Insektenbörse und Beilage: Entomologisches Vereinsblatt. Stuttgart. — Ger.
- Ent. Rec., London.*—The Entomologists' Record and Journal of Variations, London. — U.K.
- Ent. Tidskr., Stockholm.*—Entomologisk Tidskrift utgifven af Entomologiska Föreningen i Stockholm. Stockholm. — Swe.
- Ent. Zeitung, Stettin.*—Entomologische Zeitung, Stettin, printed in Berlin. — Ger.
- Ent. Zs., Frankfurt a. M.*—Entomologische Zeitschrift. Centralorgan des internationalen entomologischen Vereins. Frankfort a. M. — Ger.
- Entomologist, London.*—The Entomologist, London. — U.K.
- Erd. Vándorgy Emlékk, Kolozsvár.*—Erdélyi Múzeum Egyesület Vándorgyűléseinek Emlékkönyve, Kolozsvár. [Memoiren der Wandersitzung des siebenbürgischen Museum-Vereines, Kolozsvár.] — Roum.
- Ergebn. Anat. Entwickl., Wiesbaden.*—Vide Anat. Hefte, Wiesbaden.

- Ergebn. Physiol., Wiesbaden.*—Ergebnisse der Physiologie. Wiesbaden. — Ger.
- Ergebn. Zool., Jena.*—Ergebnisse und Fortschritte der Zoologie. Jena. — Ger.
- Essex Nat., Stratford.*—Essex Naturalist, Stratford, Essex. — U.K.
- Falco, Leipzig.*—Falco, unregelmässig im Anschluss an das Werk „Berajah, Zoographica infinita“ erscheinende Zeitschrift. Leipzig. — Ger.
- Fauna exotica, Frankfurt a. M.*—Fauna exotica. Mittheilungen aus dem Gebiete der exotischen Insektenwelt. Beiblatt der entomologischen Zeitschrift. Frankfurt a. M. — Ger.
- Fauna och Flora, Uppsala.*—Fauna och Flora. Populär Tidskrift för Biologie, utgifven af Einar Lönnberg. Uppsala and Stockholm. — Swe.
- Field Mus. Publ. Geol. Ser., Chicago.*—Field Museum Publications. Geological Series. Chicago, Ill. — U.S.
- Field Mus. Publ. Zool. Ser., Chicago.*—Field Museum Publications. Zoological Series. Chicago, Ill. — U.S.
- Flora og Fauna, Kjöbenhavn.*—Flora og Fauna. Kjöbenhavn. — Den.
- Florida Entomol., Gainesville Fla.*—The Florida Entomologist. Official Organ of the Florida Entomological Society. Gainesville, Fla. U.S.
- Földt. Közl., Budapest.*—Földtani Közlöny, Budapest. [Geologische Mittheilungen, Budapest.] — Hun.
- Folia neurobiol., Haarlem.*—Folia neurobiologica. Internationales Zentralorgan für die gesamte Biologie des Nervensystems, Haarlem. — Holl.
- Forh. Vid. selsk., Kristiania.*—Fordhandlingar i Videnskabselskabet i Kristiania. — Nor.
- Fortschr. Natw. Forsch., Berlin.*—Fortschritte der Naturwissenschaftlichen Forschung. Berlin. — Ger.
- Geelong Nat.*—The Geelong Naturalist, the Quarterly Journal of the Geelong Field Naturalists' Club. Geelong. [Victoria.] — Austral.
- Genetica, s'Gravenhage.*—Genetica. Nederlandsch Tijdschrift voor Erfelijkheids- en Afstammingsleer; s'Gravenhage. — Holl.
- Genetics, Minasha, Wis.*—Genetics: a Periodical Record of Investigations bearing on Heredity and Variation. Minasha, Wis. — U.S.
- Geol. För. Förh., Stockholm.*—Geologiska Föreningens i Stockholm förhandlingar. Stockholm. — Swe.
- Geol. Mag., London.*—Geological Magazine, London. — U.K.
- Geol. palæont. Abh., Jena.*—Geologische und palæontologische Abhandlungen. Jena. — Ger.
- Geol. Rdsch., Leipzig.*—Geologische Rundschau. Zeitschrift für allgemeine Geologie, hrsg. v. d. Geologischen Vereinigung. Leipzig. — Ger.
- Geol. Zentralb., Leipzig.*—Geologischen Zentralblatt, Leipzig.
- Geogn. Jahreshfte, München.*—Geognostische Jahreshfte, hrsg. v. d. geognostischen Abtheilung des kgl. bayerischen Oberbergamts in München. München. — Ger.
- Gerfaut, Bruxelles.*—Le Gerfaut. Revue belge d'Ornithologie. Bruxelles. — Belg.
- Ghlas Srpske Ak., Beograd (Belgrade).*—Ghlas Srpske Kraljevske akademije. Prvi razred. Beograd. Belgrade. — Yugosl.

- Giorn. sc. nat. econ., Palermo.*—Giornale della Società di scienze natura fed economiche, Palermo. — It.
- Glasgow Nat.*—The Glasgow Naturalist. The Journal of the Natural History Society of Glasgow (including the Transactions and Proceedings of the Society) (3rd Ser.). Glasgow. — U.K.
- Glasnik naravosl. družt., Zagreb.*—Glasnik hrvatskoga naravoslovnoga družtva. [Societas historico-naturalis Croatica.] Zagreb. — Yugosl.
- Glasnik ZemMuz. Bosn. Herceg., Sarajevo.*—Glasnik Zemaljskog Muzeja u Bosni i Hercegovini. (Anzeiger des Landmuseums für Bosnien und die Hercegovina.) Sarajevo. — Yugosl.
- Göteborg, Vet. Handl.*—Göteborgs Kungl. Vetenskaps- och Vitterhetssamhälles Handlingar. Göteborg. — Swe.
- Hastings and East Sussex Nat.*—Hastings and East Sussex Naturalist, being the Journal of the Hastings and St. Leonards Natural History Society. Hastings. — U.K.
- Helios, Berlin.*—Helios, Abhandlungen und Mittheilungen aus dem Gesamtgebiete der Naturwissenschaften. Organ des naturwissenschaftlichen Vereins des Reg.-Bez. Frankfurt a. O. Berlin. — Ger.
- Hereditas, Lund.*—Hereditas, Genetiskt Arkiv., Lund. — Swe.
- Himmel u. Erde, Berlin.*—Himmel und Erde. Illustrierte naturwissenschaftliche Monatsschrift. Berlin. — Ger.
- Hist. Berwickshire Nat. Cl., Alnwick.*—History of the Berwickshire Naturalists' Club, Alnwick. — U.K.
- Hoppe-Seylers Zs. physiol. Chem., Berlin.*—Hoppe-Seylers Zeitschrift für physiologische Chemie. Berlin. — Fr.
- Hornero, Buenos Aires.*—El Hornero. Revista de la Sociedad Ornitológica del Plata. Buenos Aires. — Arg.
- Hull Mus. Publ.*—Hull Museum Publications. — U.K.
- Ibis, London.*—The Ibis; a Quarterly Journal of Ornithology, London. — U.K.
- Illinois Biol. Monogr., Urbana, Ill.*—Illinois Biological Monographs, University of Illinois, Urbana, Ill. — U.S.
- Ind. J. Med. Res., Calcutta.*—Indian Journal of Medical Research, Calcutta. — Ind.
- Insecta, Rennes.*—Insecta; Revue illustree d'Entomologie, Rennes. — Fr.
- Insecutor Ins. Menstr., Washington.*—Insecutor Inscitiae Menstruus, Washington. — U.S.
- Intern. ent. Zs., Guben.*—Internationale entomologische Zeitschrift, hrsg. unter Mitarbeit bedeutender Entomologen. Guben. — Ger.
- Intern. Rev. Hydrobiol., Leipzig.*—Internationale Revue der gesamten Hydrobiologie und Hydrographie. Leipzig. — Ger.
- Iowa Geol. Surv., Des Moines.*—Iowa Geological Survey. Annual Reports, Des Moines. — U.S.
- Irish Nat., Dublin.*—Irish Naturalist (a monthly Journal of General Irish Natural History), Dublin. — U.K.
- J. Acad. Nat. Sci., Philadelphia.*—Journal of the Academy of Natural Sciences of Philadelphia. Philadelphia, Pa. — U.S.

- J. Agric. Res., Washington.*—United States Department of Agriculture. Journal of Agricultural Research. Washington, D.C. — U.S.
- J. Agric. Sci., Cambridge.*—Journal of Agricultural Science, Cambridge. — U.K.
- J. Anat., London.*—The Journal of Anatomy, London. — U.K.
- J. anat. physiol., Paris.*—Journal de l'anatomie et de la physiologie normales et pathologiques de l'homme et des animaux. Paris. — Fr.
- J. Anim. Behav., Boston.*—Journal of Animal Behavior, Boston, Mass. — U.S.
- J. Asiat. Soc. Beng., Calcutta.*—Journal and Proceedings of the Asiatic Society of Bengal, Calcutta. — Ind.
- J. Biol. Chem., Baltimore.*—The Journal of Biological Chemistry, Baltimore — U.S.
- J. Bombay Nat. Hist. Soc.*—Journal of the Bombay Natural History Society, Bombay. — Ind.
- J. China R. As. Soc., Shanghai.*—Journal of the China Branch of the Royal Asiatic Society, Shanghai. — China.
- J. Cincinnati Soc. Nat. Hist.*—Journal of the Cincinnati Society of Natural History, Cincinnati, Ohio. — U.S.
- J. Coll. Sci., Tōkyō.*—The Journal of the College of Science, Imperial University of Tōkyō, Japan. *European languages.* — Jap.
- J. Comp. Neur. Psych., Philadelphia.*—The Journal of Comparative Neurology, Philadelphia. — U.S.
- J. Comp. Path. Ther., Edinburgh.*—Journal of Comparative Pathology and Therapeutics, Edinburgh and London. — U.K.
- J. Conch., Leeds.*—The Journal of Conchology, Leeds. — U.K.
- J. conchyliol., Paris.*—Journal de conchyliologie. Paris. — Fr.
- J. Dept. Agric. Union S. Africa, Pretoria.*—Journal of the Department of Agriculture, Union of South Africa. Pretoria. — S. Af.
- J. Derby Archæol. Nat. Hist. Soc.*—Journal of the Derbyshire Archæological and Natural History Society. London and Derby. — U.K.
- J. E. Afr. & Uganda N.H. Soc., Nairobi.*—Journal of the East Africa and Uganda Natural History Society. Nairobi, printed in London. — Kenya Col.
- J. Econ. Ent., Geneva, N.Y.*—Journal of Economic Entomology: official organ of the Association of Economic Entomologists. Geneva, N.Y. — U.S.
- J. Elisha Mitchell Sci. Soc., Chapel Hill, N.C.*—Journal of the Elisha Mitchell Scientific Society, Chapel Hill, N.C. — U.S.
- J. Ent. Zool., Claremont, Cal.*—Journal of Entomology and Zoology, Pomona College. Claremont, Cal. — U.S.
- J. Exp. Med., New York.*—Journal of Experimental Medicine, New York. — U.S.
- J. Exp. Zool., Philadelphia.*—The Journal of Experimental Zoology, Philadelphia, Pa. — U.S.
- J. Fed. Malay Mus., Kuala Lumpur.*—Journal of the Federated Malay States Museums, Kuala Lumpur. — Straits Settlements.
- J. Genetics, Cambridge.*—Journal of Genetics, Cambridge. — U.K.

- J. Geol., Chicago, Ill.*—Journal of Geology. University of Chicago, Chicago, Ill. — U.S.
- J. Geol. Soc., Tokyo.*—Journal of the Geological Society of Tokio. (In Japanese, with English title-page, etc.) — Jap.
- J. Ipswich F. Cl.*—Journal of the Ipswich and District Field Club, Ipswich.
- J. Linn. Soc. Zool., London.*—Journal of the Linnean Society (Zoology), London. — U.K.
- J. Mammal., Baltimore.*—Journal of Mammalogy. Published by the American Society of Mammalogists. Baltimore, Md. — U.S.
- J. Mar. Biol. Ass., Plymouth.*—Journal of the Marine Biological Association of the United Kingdom, Plymouth. — U.K.
- J. Med. Res., Boston, Mass.*—Journal of Medical Research. Continuation of the Journal of the Boston Society of Medical Sciences. Boston, Massachusetts. — U.S.
- J. Ministr. Agric., London.*—Journal of the Ministry of Agriculture, London. — U.K.
- J. Morph., Philadelphia.*—Journal of Morphology, Philadelphia, Pa. — U.S.
- J. Mus. Comp. Ool., S. Barbara, Cal.*—The Journal of the Museum of Comparative Oology, Santa Barbara, Cal. — U.S.
- J. Nat. Hist. Soc. Siam, Bangkok.*—Journal of the Natural History Society of Siam, Bangkok. — Siam.
- J. Nat. Hist. Soc., Torquay.*—Journal of the Natural History Society, Torquay. — U.K.
- J. New York Ent. Soc.*—Journal of the New York Entomological Society, New York. — U.S.
- J. Northampton Nat. Hist. Soc.*—Journal of the Northamptonshire Natural History Society and Field Club, Northampton. — U.K.
- J. Ornith., Leipzig.*—Journal für Ornithologie. Leipzig. — Ger.
- J. Parasitology, Urbana, Ill.*—Journal of Parasitology: A quarterly devoted to Medical Zoology. Urbana, Ill. — U.S.
- J. Path. Bact., Edinburgh.*—Journal of Pathology and Bacteriology, Edinburgh and London. — U.K.
- J. Physiol., Cambridge.*—The Journal of Physiology. [Includes Proceedings of the Physiological Society.] London and Cambridge. — U.K.
- J. physiol. path. gén., Paris.*—Journal de physiologie et de pathologie générale. Paris. — Fr.
- J. Proc. R. Soc. N.S. Wales, Sydney.*—Journal and Proceedings of the Royal Society of New South Wales, Sydney. — Australia.
- J. Psychol., Leipzig.*—Journal für Psychologie und Neurologie. Organ des Kaiser Wilhelm-Institut für Hirnforschung und des neuro-biologischen Instituten der Universität, Berlin. Leipzig. — Ger.
- J. Quek. Microsc. Cl., London.*—Journal of the Quekett Microscopical Club, London. — U.K.
- J. R. Agric. Soc., London.*—Journal of the Royal Agricultural Society of England, London. — U.K.
- J. R. Inst. Cornwall, Truro.*—Journal of the Royal Institution of Cornwall, Truro. — U.K.

- J. R. Microsc. Soc., London.*—Journal of the Royal Microscopical Society, London. — U.K.
- J. R. Soc., Sydney, N.S.W.*—The Journal of the Royal Society, Sydney. — Austral.
- J. R. Soc. West Austral., Perth.*—Journal and Proceedings of the Royal Society of West Australia, Perth. — Austral.
- J. Sci., Lisboa.*—Jornal de Sciencias matematicas, fisicas e naturais, publicado pela Academia das Sciencias de Lisboa. — Por.
- J. Straits Asiat. Soc., Singapore.*—Journal of the Straits Branch of the Royal Asiatic Society, Singapore. — Strs. Settl.
- J. Trop. Med., London.*—Journal of Tropical Medicine and Hygiene, London. — U.K.
- J. Trop. Vet. Sci., Calcutta.*—The Journal of Tropical Veterinary Science, Calcutta. — Ind.
- J. Washington Acad. Sci.*—Journal of the Washington Academy of Sciences, Washington, D.C. — U.S.
- J. Wild Bd. Invest. Soc., London.*—Journal of the Wild Bird Investigation Society, London. — U.K.
- J. Zool. Res., London.*—The Journal of Zoological Research, London. — U.K.
- Jaarb. Cl. Ned. Vogelk., Delft.*—Jaarbericht. Club van Nederlandsche Vogelkundigen, Delft. — Hol.
- Jahrb. Ak. Wiss., Erfurt.*—Jahrbücher der kgl. Akademie gemeinnütziger Wissenschaften zu Erfurt. Erfurt. — Ger.
- Jahrb. geol. Landesanst., Berlin.*—Jahrbuch der kgl. preussischen geologischen Landesanstalt und Bergakademie. Berlin. — Ger.
- Jahrb. Geol. RchsAnst., Wien.*—Jahrbuch der k. k. Geologischen ReichsAnstalt, Wien. — Aus.
- Jahrb. Hamburg wiss. Anst.*—Jahrbuch der Hamburgischen wissenschaftlichen Anstalten. Hamburg. — Ger.
- Jahrb. Nat.-Hist. LdMus. Kärnten, Klagenfurt.*—Jahrbuch des Naturhistorischen Landes-Museums von Kärnten. Klagenfurt. — Aus.
- Jahrb. St. Gallen Natw. Ges.*—Jahrbuch der St. Gallischen naturwissenschaftlichen Gesellschaft. St. Gallen. — Swi.
- Jahrb. Ver. Natk., Wiesbaden.*—Jahrbücher des nassauischen Vereins für Naturkunde. Wiesbaden. — Ger.
- Jahresber. Anat., Jena.*—Jahresberichte über die Fortschritte der Anatomie und Entwicklungsgeschichte. Jena. — Ger.
- Jahresber. Böhm. Ges. Wiss., Prag.*—Jahresbericht der Königlich Böhmisches Gesellschaft der Wissenschaften. Prag. — Checho-Slov.
- Jahresber. Ges. Natw., Gera.*—Jahresbericht der Gesellschaft von Freunden der Naturwissenschaft in Gera. — Ger.
- Jahresber. Ges. vaterl. Cultur, Breslau.*—Jahresbericht der schlesischen Gesellschaft für vaterländische Cultur. Breslau. — Ger.
- Jahresber. Mus. Franc. Carol., Linz.*—Jahresbericht des Museums Francisco-Carolinum. Nebst der . . . Lieferung der Beiträge zur Landeskunde von Österreich ob der Enns. Linz. — Aus.
- Jahresber. natf. Ges. Graub., Chur.*—Jahresbericht der naturforschenden Gesellschaft Graubündens. Chur. — Swi.

- Jahresber. natf. Ges., Emden.*—Jahresbericht der naturforschenden Gesellschaft in Emden. Emden. — Ger.
- Jahresber. nathist. Ges., Hannover.*—Jahresbericht der naturhistorischen Gesellschaft zu Hannover. Hannover. — Ger.
- Jahresber. natw. Ver., Elberfeld.*—Jahresberichte des naturwissenschaftlichen Vereins in Elberfeld und Barmen. Elberfeld. — Ger.
- Jahresber. oberrhein. geol. Ver., Stuttgart.*—Jahresberichte und Mitteilungen des oberrheinischen geologischen Vereines, Stuttgart. — Ger.
- Jahresber. Physiol., Stuttgart.*—Jahresbericht über die Fortschritte der Physiologie. Stuttgart. — Ger.
- Jahresber. ProvVer. Wiss., Münster.*—Jahresbericht des westfälischen Provinzialvereins für Wissenschaft und Kunst. Münster. — Ger.
- Jahresber. Ver. Natk., Zwickau.*—Jahresbericht des Vereins für Naturkunde zu Zwickau. Zwickau. — Ger.
- Jahresber. Ver. Natw., Braunschweig.*—Jahresbericht des Vereins für Naturwissenschaft zu Braunschweig. — Ger.
- Jahresber. Wien. Entom. Ver.*—Jahresbericht des Wiener Entomologischen Vereines. Wien. — Aus.
- Jahreshefte Ver. Insektenk., Breslau.*—Jahresheft des Vereins für schlesische Insektenkunde zu Breslau. — Ger.
- Jahreshefte Ver. Natk., Stuttgart.*—Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg. Stuttgart. — Ger.
- Japan. J. Geol. Geogr., Tokio.*—Japanese Journal of Geology and Geography, Tokio. — Jap.
- Jenaische Zs. Natw.*—Jenaische Zeitschrift für Naturwissenschaft, hrsg. v. d. medicinisch-naturwissenschaftlichen Gesellschaft zu Jena. — Ger.
- Johns Hopkins Univ. Stud. Geol., Baltimore.*—The Johns Hopkins University Studies in Geology, Baltimore. — U.S.
- K. Svenska Vet.-Ak. Handl., Stockholm.*—Kongl. Svenska Vetenskaps-Akademiens Handlingar. Stockholm. — Swe.
- Koleopt. Rundsch. Vienna.*—Koleopterologische Rundschau, Wien. — Aus.
- Konch. Sek., Gifu.*—Konchū Sekai (The Insect World, a monthly magazine devoted to the useful application and scientific study of entomology). Gifu, Japan. — Jap.
- Konowia, Vienna.*—“Konowia.” Zeitschrift für systematische Insektenkunde. Wien. — Aus.
- Korr.-blt. Naturf.-Ver., Riga.*—Korrespondenzblatt des Naturforscher-Vereins zu Riga. — Esth.
- Kosmos, Lemberg.*—Kosmos, czasopismo Polskiego Towarzystwa przyrodników im. Kopernika, Lwów (i.e., Lemberg). — Pol.
- L. M. B. C. Mem., Liverpool.*—Liverpool Marine Biology Committee. L. M. B. C. Memoirs. Liverpool. — U.K.
- Lancs. Ches. Nat.*—The Lancashire and Cheshire Naturalist: a Monthly Journal. Darwen, Lancs. — U.K.
- Leopoldina, Halle.*—Leopoldina. Amtl. Organ der kais. Leopoldinisch-Carolinischen deutschen Akademie der Naturforscher, Halle. Leipzig. — Ger.

- Lepidopterist, Salem, Mass.*—The Lepidopterist Salem, Mass. — U.S.
- London Naturalist.*—The London Naturalist (The Journal of the London Natural History Society), London. — U.K.
- Lotos, Prag.*—Lotos, naturwissenschaftl. Zeitschrift, hrsg. vom deutschen naturw. med. Verein „Lotos“ in Prag. Prag. — Checko-Slov.
- Maanedsskr. Dyrk., Kjöbenhavn.*—Maanedsskrift for Dyrlaeger, Kjöbenhavn. — Den.
- Magyar Kir Földt. Évk., Budapest.*—A Magyar Kir Földtani Évkönyvei, Budapest. [Jahrbuch für Geologie Budapest.] — Hun.
- Magyar Kir Földt. Int. Évi Jelent., Budapest.*—A Magyar Királyi Földtani Intézet Évi Jelentése, Budapest. [Jahresbericht der Königlichen ungarischen geologischen Anstalt. Budapest.] — Hun.
- Malayan Agric. J., Kuala Lumpur.*—The Malayan Agricultural Journal. The organ of the Department of Agriculture, Kuala Lumpur. — Fed. Malay.
- Marcellid, Avellino.*—Marcellia, Rivista internazionale di Cecidologia, Avellino. — It.
- Maryland Geol. Surv., Baltimore.*—Maryland Geological Survey, Baltimore. — U.S.
- Math.-natw. Ber. Ungarn, Leipzig.*—Mathematische und naturwissenschaftliche Berichte aus Ungarn. Leipzig. — Ger.
- Math. Termt. Ért., Budapest.*—Mathematikai és Természettudományi Értesítő, Budapest. [Mathematischer und naturwissenschaftlicher Anzeiger, Budapest.] — Hun.
- Medd. Geol., Kjöbenhavn.*—Meddelelser fra dansk geologisk Forening, Kjöbenhavn. — Den.
- Medd. Grönl., Kjöbenhavn.*—Meddelelser om Grönland, Kjöbenhavn. — Den.
- Medd. Havunders. Kjöbenhavn.*—Meddelelser fra Kommissionen for Havundersøgelser, Kjöbenhavn. — Den.
- Medd. Soc. Fauna et Fl. Fenn., Helsingfors.*—Meddelanden af Societas pro Fauna et Flora Fennica. Helsingfors. — Fin.
- Meded. Vissch. Stat., Batavia.*—Mededeelingen van het Visscherij station te Batavia. — Dutch Ind.
- Melanges Exot. Entom., Moulins.*—Melanges Exoto-Entomologiques ebet. St. Amand (Cher) and Moulins. — Fr.
- Mém. Acad. Roy., Bruxelles.*—Mémoires de l'Académie royale des sciences, des lettres et des beaux-arts de Belgique. Bruxelles. — Bel.
- Mem. Acad. Sci., Lisboa.*—Memorias da Academia das Sciencias de Lisboa. — Por.
- Mém. Acad. sci., Paris.*—Mémoires de l'Académie des sciences de l'Institut de France. Paris. 4to. — Fr.
- Mém. Acad. sci. arts, Dijon.*—Mémoires de l'Académie des sciences, arts et belles-lettres. Dijon (Côte d'Or). — Fr.
- Mém. Acad. sci. bel.-let., Chambéry.*—Mémoires de l'Académie des sciences, belles-lettres et arts de la Savoie. Chambéry (Savoie). — Fr.
- Mém. Acad. sci. bel.-let., Lyon.*—Mémoires de l'Académie des sciences, belles-lettres et arts de Lyon (Rhône). — Fr.
- Mém. Acad. sci. inscrip., Toulouse.*—Mémoires de l'Académie des sciences, inscriptions et belles lettres de Toulouse (Haute-Garonne). — Fr.

- Mem. Acc. Lincei., Roma.*—Memorie della R. Accademia dei Lincei, Roma. — It.
- Mem. Acc. Nuovi Lincei, Roma.*—Memorie dell'Accademia pontificia dei Nuovi Lincei, Roma. — It.
- Mem. Acc. sc., Bologna.*—Memorie della R. Accademia delle scienze dell'Istituto, Bologna. — It.
- Mem. Acc. sc., Modena.*—Memorie della R. Accademia di scienze, lettere ed arti, Modena. — It.
- Mem. Acc. sc., Torino.*—Memorie della R. Accademia delle scienze, Torino. — It.
- Mem. Amer. Acad. Arts Sci., Boston.*—Memoirs of the American Academy of Arts and Sciences, Boston, Mass. — U.S.
- Mem. Amer. Ent. Soc., Philadelphia.*—Memoirs of the American Entomological Society, Philadelphia, Pa. — U.S.
- Mem. Amer. Mus. Nat. Hist., New York.*—Memoirs of the American Museum of Natural History, New York, N.Y. — U.S.
- Mem. Asiat. Soc. Bengal, Calcutta.*—Memoirs of the Asiatic Society of Bengal, Calcutta. 4to. — India.
- Mem. Austr. Mus., Sydney, N.S.W.*—Memoirs of the Australian Museum, Sydney, N.S.W. — Austral.
- Mem. Boston Soc. Nat. Hist.*—Memoirs of the Boston Society of Natural History, Boston, Mass. — U.S.
- Mem. Cal. Acad. Sci., San Francisco.*—Memoirs of the California Academy of Sciences, San Francisco, Cal. — U.S.
- Mem. Carnegie Mus., Pittsburg, Pa.*—Memoirs of the Carnegie Museum, Pittsburg, Pennsylvania. — U.S.
- Mem. Com. Invest. Palaeon., Madrid.*—Memorias de la Comisión de Investigaciones Paleontológicas y Prehistoricas, Madrid. — Spain.
- Mem. Conn. Acad., New Haven.*—Memoirs of the Connecticut Academy of Arts and Sciences, New Haven, Conn. 4to. — U.S.
- Mem. Dept. Agric. Ind. Ent. Ser., Calcutta.*—Memoirs of the Department of Agriculture in India. Entomological Series. Calcutta. — Ind.
- Mem. descr. Carta Geol. Ital., Roma.*—Memorie per service alla descrizione delle Carta Geologica d'Italia, Roma. — It.
- Mem. Geol. Surv., Canada, Ottawa.*—Canada Department of Mines. Geological Survey Memoirs. Ottawa, Can.
- Mem. Geol. Surv. Ind., Calcutta.*—Memoirs of the Geological Survey of India, Calcutta. — Ind.
- Mem. Geol. Surv., N.S.Wales, Sydney.*—Memoirs of the Geological Survey of New South Wales, Sydney. — Austral.
- Mem. Geol. Surv. U.K., London.*—Memoirs of the Geological Survey of the United Kingdom, London, Glasgow, etc. — U.K.
- Mem. Geol. Surv., Vict., Melbourne.*—Victoria, Department of Mines. Memoirs of the Geological Survey of Victoria. Melbourne. — Austral.
- Mem. Ind. Mus., Calcutta.*—Memoirs of the Indian Museum. Calcutta. — Ind.
- Mém. Inst. Egypt., Cairo.*—Mémoires de l'Institut Egyptien. Le Caire. — Egypt.
- Mém. Inst. Nat., Genève.*—Mémoires de l'Institut national genevois. Genève. 4to. — Swi.

- Mem. Inst. Oswaldo Cruz., Rio de Janeiro.*—Memorias do Instituto Oswaldo Cruz. Rio de Janeiro. — Brazil.
- Mem. Ist. Geol. Univ., Padova.*—Memorie dell'Istituto Geologico della R. Università di Padova. — Ital.
- Mem. Ist. lomb., Milano.*—Memorie della R. Istituto lombardo di scienze e lettere, Milano. — It.
- Mem. Ist. ven., Venezia.*—Memorie del R. Istituto veneto di scienze, lettere ed arti, Venezia. — It.
- Mem. Lit. Phil. Soc., Manchester.*—Memoirs and Proceedings of the Manchester Literary and Philosophical Society, Manchester. — U.K.
- Mém. Mus. Belgique, Bruxelles.*—Mémoires du Musée Royal d'histoire naturelle de Belgique, Bruxelles. — Bel.
- Mem. Mus. Comp. Zool., Cambridge, Mass.*—Memoirs of the Museum of Comparative Zoölogy of Harvard College, Cambridge, Mass. — U.S.
- Mem. Nat. Acad. Sci., Washington.*—Memoirs of the National Academy of Sciences, Washington, D.C. — U.S.
- Mem. Nat. Mus., Melbourne.*—Memoirs of the National Museum. Melbourne. — Austral.
- Mem. New York State Mus., Albany.*—New York State Education Department. New York State Museum. Memoirs. Albany. — U.S.
- Mém. présente Acad. sci., Paris.*—Mémoires présentés par divers savants à l'Académie des sciences de l'Institut de France. Paris. — Fr.
- Mem. Queensland Mus., Brisbane.*—Memoirs of the Queensland Museum. Brisbane. — Austral.
- Mem. R. Ac. Cs., Barcelona.*—Memorias de la Real Academia de Ciencias y Artes de Barcelona. — Spain.
- Mem. R. Soc. S. Austral., Adelaide.*—Memoirs of the Royal Society of South Australia. Adelaide. — Austral.
- Mém. sec. sci. Acad. sci. let., Montpellier.*—Mémoires de la section des sciences de l'Académie des sciences et lettres de Montpellier (Hérault). — Fr.
- Mem. Soc. Acad. de l'Aube, Troyes.*—Memoirs de la Société Académique de l'Aube Troyes. — Fr.
- Mem. Soc. Ant. Alzate, Mexico.*—Memorias de la Sociedad Cinetifica "Antonio Alzate." Mexico. — Mex.
- Mem. Soc. Cuba Hist. Nat., Habana.*—Memorias de la Sociedad Cubana de Historia Natural "Felipe Poey." Habana. — Cuba.
- Mém. soc. émül., Montbéliard.*—Mémoires de la société d'émulation de Montbéliard (Doubs). — Fr.
- Mém. Soc. ent. Belgique, Bruxelles.*—Mémoires de la Société entomologique de Belgique. Bruxelles. — Bel.
- Mem. Soc. Esp. Hist. Nat., Madrid.*—Memorias de la Sociedad Española de Historia Natural, Madrid. — Spain.
- Mém. soc. géol., Paris.*—Mémoires de la société géologique de France. Paris. — Fr.
- Mem. Soc. Iber. Cien. Nat., Zaragoza.*—Memorias de la Sociedad Ibérica de Ciencias Naturales, Zaragoza. — Spain.
- Mem. Soc. ital. sc. nat., Milano.*—Memorie della Società italiana di scienze naturali, Milano. — It.

- Mém. soc. linn., Amiens.*—Mémoires de la Société linnéenne du Nord de la France. Amiens. — Fr.
- Mém. soc. linn., Caen.*—Mémoires de la société linnéenne de Normandie. Caen (Calvados). — Fr.
- Mém. Soc. Pal. Suisse, Genève v. Abh. Schweiz. Pal. Ges.*
- Mem. Soc. Pal. Russ. Petrograd.*—Mémoires, Société Paléontologique de Russie. Petrograd. — Russ.
- Mém. Soc. Phys., Genève.*—Mémoires de la Société de physique et d'histoire naturelle de Genève. 4to. — Swi.
- Mem. Soc. Portug. Sci. Nat., Lisboa.*—Memorias publicadas pela Sociedade Portuguesa de Sciéncias Naturals. Lisboa. — Port.
- Mém. Soc. roy. sci., Liège.*—Mémoires de la Société royale des sciences de Liège. Bruxelles. — Bel.
- Mém. Soc. sci. arts lettres du Hainaut, Mons.*—Mémoires et publications de la Société des sciences, des arts et des lettres du Hainaut. Mons. — Bel.
- Mém. soc. sci. nat., Cherbourg.*—Mémoires de la société nationale des sciences naturelles et mathématiques de Cherbourg (Manche). — Fr.
- Mém. Soc. Sci. Nat., Fribourg.*—Mémoires de la Société fribourgeoise des sciences naturelles. Fribourg. — Swi.
- Mém. Soc. Sci. nat. Maroc, Rabat.*—Mémoires de la Société des Sciences naturelles du Maroc, Rabat and Paris.—Morocco.
- Mém. soc. sci. nat., Versailles.*—Mémoires de la société des sciences naturelles et médicales de Seine-et-Oise. Versailles (Seine-et-Oise). — Fr.
- Mém. soc. sci. phys. nat., Bordeaux.*—Mémoires de la société des sciences physiques et naturelles de Bordeaux. — Fr.
- Mem. Soc. XL., Roma.*—Memorie della Società italiana delle scienze, detta dei XL. Roma, Napoli, etc., etc. — It.
- Mém. soc. zool., Paris.*—Mémoires de la société zoologique de France. Paris. — Fr.
- Mem. Univ. Cal., Berkeley.*—Memoirs of the University of California, Berkeley Cal. — U.S.
- Misc. ent., Narbonne.*—Miscellanea entomologica. Revue entomologique internationale (édition française). Narbonne; printed Uzès. — Fr.
- Misc. Publ. Mus. Zool. Univ. Michigan, Ann Arbor.*—Miscellaneous Publications. Museum of Zoology. University of Michigan. Ann Arbor, Mich. — U.S.
- Mitt. biol. Anst., Berlin.*—Mitteilungen aus der kaiserlichen Anstalt für Land- und Forstwirtschaft. Berlin. — Ger.
- Mitt. D. Landw. Ges., Berlin.*—Mitteilungen der deutschen Landwirthschafts-Gesellschaft. Berlin. — Ger.
- Mitt. ent. Ges., München.*—Mitteilungen der Münchener entomologischen Gesellschaft, E. V., München. — Ger.
- Mitt. Ges. Erdk., Leipzig.*—Mitteilungen des Gesellschaft für Erdkunde zu Leipzig. — Ger.
- Mitt. geogr. Ges., Lübeck.*—Mittheilungen der geographischen Gesellschaft und des naturhistorischen Museums in Lübeck. — Ger.
- Mitt. Geol. Ges., Wien.*—Mitteilungen der geologischen Gesellschaft Wien. — Aus.

- Mitt. geol. Landesanst., Heidelberg.*—Mittheilungen der grossherzoglich badischen geologischen Landesanstalt, hrsg. im Auftr. des Ministeriums des Innern. Heidelberg. — Ger.
- Mitt. geol. Landesanst., Rostock.*—Mittheilungen aus der grossherzoglich mecklenburgischen geologischen Landesanstalt. Rostock. — Ger.
- Mitt. Natf. Ges., Aarau.*—Mittheilungen der aargauischen naturforschenden Gesellschaft. Aarau. — Swi.
- Mitt. Natf. Ges., Bern.*—Mittheilungen der naturforschenden Gesellschaft in Bern. Bern. — Swi.
- Mitt. natf. Ges., Halle.*—Mittheilungen der naturforschenden Gesellschaft zu Halle a. S. — Ger.
- Mitt. Natf. Ges., Luzern.*—Mittheilungen der naturforschenden Gesellschaft in Luzern. — Swi.
- Mitt. Natf. Ges., Solothurn.*—Mittheilungen der Naturforschenden Gesellschaft in Solothurn. — Swi.
- Mitt. natw. Ver., Greifswald.*—Mittheilungen aus dem naturwissenschaftlichen Verein für Neu-Vorpommern und Rügen in Greifswald. Berlin. — Ger.
- Mitt. Natw. Ver. Steierm., Graz.*—Mittheilungen des Naturwissenschaftlichen Vereines für Steiermark. Graz. — Aus.
- Mitt. Natw. Ver. Univ., Wien.*—Mittheilungen des Naturwissenschaftlichen Vereines an der Universität Wien. — Aus.
- Mitt. Osterland, Altenburg.*—Mittheilungen aus dem Osterlande, hrsg. v. d. naturforschenden Gesellschaft des Osterlandes zu Altenburg. — Ger.
- Mitt. Pollichia, Dürkheim.*—Mittheilungen der Pollichia, eines naturwissenschaftlichen Vereines der Rheinpfalz. Dürkheim. — Ger.
- Mitt. Schweiz. Entom. Ges., Bern.*—Mittheilungen der schweizerischen entomologischen Gesellschaft. Bulletin de la société entomologique Suisse. Bern. — Swi.
- Mitt. Thurg. Natf. Ges., Frauenfeld.*—Mittheilungen der thurgauischen naturforschenden Gesellschaft. Frauenfeld. — Swi.
- Mitt. Ver. Erdk., Dresden.*—Mittheilungen des Vereins für Erdkunde zu Dresden. — Ger.
- Mitt. Vögelw. Stuttgart.*—Mittheilungen über die Vögelwelt, Stuttgart. — Ger.
- Mitt. Zool. Inst. Wesfal. Univ., Münster.*—Mittheilungen aus dem Zoologischen Institut der Westfälischen Wilhelms Universität zu Münster i. W. — Ger.
- Mitt. zool. Mus., Berlin.*—Mittheilungen aus dem zoologischen Museum in Berlin. Berlin. — Ger.
- Mitt. Zool. Staatsinst. Zool. Mus. Hamburg.*—Mittheilungen aus dem Zoologischen Staatsinstitut und Zoologischen Museum in Hamburg. — Ger.
- Monitore zool. ital., Firenze.*—Il Monitore zoologico italiano, Firenze. — It.
- Monogr. Iowa Geol. Surv., Des Moines.*—Iowa Geological Survey, Monographs, Des Moines. — U.S.
- Monogr. Palæont. Soc., London.*—Monographs of the Palæontographical Society, London. — U.K.
- Monogr. U.S. Geol. Surv., Washington.*—Department of the Interior. Monographs of the United States Geological Survey. Washington, D.C. — U.S.

- Morph. Jahrb., Leipzig.*—Gegenbauer's Morphologisches Jahrbuch. Leipzig. — Ger.
- Mus. Bul., Ottawa.*—Vide Bul. Canada.
- Mus. J., London.*—The Museums Journal, the organ of the Museums Association, London. — U.K.
- Museum Work, Providence, R.I.*—Museum Work: Including the Proceedings of the American Association of Museums. Providence, R.I. — U.S.
- Museumskunde, Berlin.*—Museumskunde. Zeitschrift für Verwaltung und Techniki öffentlicher und privater Sammlungen. Berlin. — Ger.
- N. Denkschr. Schweiz. naturf. Ges., Zürich.*—Neue Denkschriften der schweizerischen naturforschenden Gesellschaft. Nouveaux Mémoires de la Société helvétique des sciences naturelles. Zürich etc. 4to. — Swi.
- N. Jahrb. Min., Stuttgart.*—Neues Jahrbuch für Mineralogie, Geologie und Paläontologie. Stuttgart. — Ger.
- N. Zealand J. Sci. Tech., Wellington.*—New Zealand Journal of Science and Technology, Wellington. — N.Z.
- NachrBl. D. malakozool. Ges., Frankfurt a. M.*—Nachrichtenblatt der deutschen malakozoologischen Gesellschaft. Frankfurt a. M. — Ger.
- Nat. Canad., Québec.*—Le Naturaliste Canadien, Québec. — Can.
- Nat. Novit., Berlin.*—Naturae Novitates. Bibliographie neuer Erscheinungen aller Länder auf dem Gebiete der Naturgeschichte und der exacten Wissenschaften. Berlin — Ger.
- Nat. Hist., New York.*—Natural History: Journal of the American Museum of Natural History, New York. — U.S.
- Nat. Tijdschr., Batavia.*—Natuurkundig Tijdschrift voor Nederlandsch-Indië uitgegeven door de Koninklijke natuurkundige Vereeniging, Weltevreden. — Dutch Ind.
- Nation. Geog. Mag., Washington, D.C.*—National Geographic Magazine, Washington, D.C. — U.S.
- Natura, Milano.*—Natura, Rivista mensile di scienze naturali edita dalla Società Italiana di Scienze Naturali, Milano. — Ital.
- Naturaleza, Mexico.*—La Naturaleza. Periódico científico de la Sociedad mexicana de Historia natural, Mexico. — Mex.
- Naturalist, London.*—The Naturalist, Leeds and London. — U.K.
- Naturalista sicil., Palermo.*—Il Naturalista siciliano, Palermo. — It.
- Nature, London.*—Nature, London. — U.K.
- Nature, Paris.*—La Nature, revue des sciences et de leurs applications aux arts et à l'industrie. Paris. — Fr.
- Nature Notes, London.*—Nature Notes (Selborne Society's Magazine), London. — U.K.
- Naturen, Bergen.*—Naturen, Bergen. — Nor.
- Natw. Wochenschr., Jena.*—Naturwissenschaftliche Wochenschrift. Jena. — Ger.
- Nautilus, Boston, Mass.*—Nautilus, Boston, Mass. [formerly Philadelphia, Pa.] — U.S.
- Neujahrbl. natf. Ges., Zürich.*—Neujahrsblatt der Naturforschenden Gesellschaft in Zürich. 4to. — Swi.

- Neurol. Centralbl., Leipzig.*—Neurologisches Centralblatt. Leipzig. — Ger.
- Norges geol. Und., Kristiania.*—Norges geologiske Undersøgelse, Kristiania. — Nor.
- Norsk Fisket, Bergen.*—Norsk Fiskeritidende, utgit av Selskapet for de norske fiskeris fremme, Bergen. — Nor.
- Norsk. Geol. Tids., Kristiania.*—Norsk Geologisk Tidsskrift, Kristiania. — Nor.
- Norsk Orn. Tidsskr., Stavanger.*—Norsk ornithologisk Tidsskrift, Stavanger. — Nor.
- North Amer. Fauna, Washington.*—North American Fauna: U.S. Department of Agriculture: Bureau of Biological Survey, Washington, D.C. — U.S.
- Not. Ent. Helsingfors.*—Notulae Entomologicae, edidit Societas Entomologia Helsingforsiensis, Helsingfors. — Finl.
- Notes Manchester Mus.*—Notes from the Manchester Museum, Manchester. — U.K.
- Notizbl. Ver. Erdk., Darmstadt.*—Notizblatt des Vereins für Erdkunde und der grossherzoglichen geologischen Landesanstalt zu Darmstadt, nebst Mittheilungen aus der grossherzoglich hessischen Centralstelle für die Landesstatistik. Darmstadt. — Ger.
- Nouv. Arch. miss. sci. litt., Paris.*—Nouvelles archives des Missions scientifiques et littéraires. Paris. — Fr.
- Nouv. Arch. Muséum, Paris.*—Nouvelles archives du Muséum. Paris. — Fr.
- Nov. Zool., Tring.*—Novitates Zoologicae, Tring. — U.K.
- Nova Acta Leop., Halle.*—Nova Acta academiae caesar. Leopoldino-Carolinae naturae curiosorum. Abhandlungen der kaiserl. Leopoldinisch-Carolinischen deutschen Akademie der Naturforscher, Halle. Leipzig. — Ger.
- Nova Acta Soc. Scient., Upsala.*—Nova acta Regiae Societatis Scientiarum Upsaliensis. Upsala. 4to. — Swe.
- Nyt. Mag. Naturv., Kristiania.*—Nyt Magazin för Naturvidenskaberne, Kristiania. — Nor.
- Occ. Paprs., Bernice Pauahi Bishop Mus., Honolulu, H.I.*—Occasional Papers of the Bernice Pauahi Bishop Museum of Polynesian Ethnology and Natural History. Honolulu. — Hawaiian Is.
- Occ. Paprs. Mus. Zool. Ann Arbor, Mich.*—Occasional Papers of the Museum of Zoology, University of Michigan, Ann Arbor, Mich. — U.S.
- Occ. Paprs. Soc. Nat. Hist., Boston.*—Occasional Papers of the Boston Society of Natural History, Boston, Mass. — U.S.
- Öfvers. F. Vet. Soc., Helsingfors.*—Öfversigt af Finska Vetenskaps-Societeten's Förhandlingar. Helsingfors. — Fin.
- Ohio J. Sci., Columbus.*—Ohio Journal of Science. Columbus, Ohio. — U.S.
- Oiseau, Paris.*—L'Oiseau. Revue d'Histoire naturelle appliquée. Deuxieme Partie. Ornithologie-Aviculture. Paris. — Fr.
- Onderz. Physiol. Lab., Utrecht.*—Onderzoekingen gedaan in het physiologisch Laboratorium der Utrechtsche Hoogeschool, Utrecht. — Hol.
- Ool. Rec., London.*—The Oologists' Record, London. — U.K.
- Ornith. Beob., Basel.*—Der Ornithologische Beobachter: Offizielles Organ der Schweizer. Gesellschaft für Vogelkunde und Vogelschutz. Basel. — Swi.
- Ornith. Monatsber., Berlin.*—Ornithologische Monatsberichte, Berlin. — Ger.

- Ornith. Monatschr., Magdeburg.*—Ornithologische Monatsschrift hrsg. v. deutschen Vereine zum Schutze der Vogelwelt. Magdeburg [früher Gera und Dresden]. — Ger.
- Overs. Vid. Selsk., Kjöbenhavn.*—Oversigt over det kongelige danske Videnskabernes Selskabs Fordhandlingar, Kjöbenhavn. — Den.
- Palaeont. Amer. Ithaca, N.Y.*—Palaeontographica Americana. Illustrated Contributions to the Invertebrate Palaeontology of America, Ithaca, N.Y. — U.S.
- Palaeont. Bul. Geol. Surv. N. Zeal., Wellington.*—Palaeontological Bulletins, Geological Survey, New Zealand. Wellington. — N.Z.
- Palaeont. Ind., Calcutta.*—Memoirs of the Geological Survey of India. Palaeontologia Indica, Calcutta. (Being figures and descriptions of the organic remains procured during the progress of the Geological Society of India.) — Ind.
- Palaeont. Sinica, Peking.*—Palaeontologia Sinica: Geological Survey of China, Peking. — China.
- Palaeont. Zs., Berlin.*—Palaeontologische Zeitschrift. Organ des Paleontologischen Gesellschaft, in deren Auftrage, Berlin. — Ger.
- Paleontogr. Italica, Pisa.*—Paleontografia Italica, Pisa. — It.
- Palaeontographica, Stuttgart.*—Palaeontographica. Beiträge zur Naturgeschichte der Vorzeit. Stuttgart. — Ger.
- Papers Dept. Marine Biol. Carnegie Inst., Washington.*—Papers from the Department of Marine Biology of the Carnegie Institution of Washington. — U.S.
- Papers and Proc. Hants F. Cl., Southampton.*—Papers and Proceedings of the Hampshire Field Club and Archaeological Society. Southampton. — U.K.
- Papers and Proc. R. Soc. Tasmania, Hobart.*—Papers and Proceedings of the Royal Society of Tasmania, Hobart. — Austral.
- Parasitol. Cambridge.*—Parasitology, a supplement to the Journal of Hygiene. Cambridge. — U.K.
- Phil. Trans. R. Soc., London.*—Philosophical Transactions of the Royal Society, London. 4to. — U.K.
- Philippine J. Sci., Manila, P.I.*—The Philippine Journal of Science, Bureau of Science of the Philippine Islands. Manila. — Philippine Is.
- Physis, Buenos Aires.*—Physis, Buenos Aires. — Arg.
- Polsk. Pismo. Ent. Lwow.*—Polskie Pismo Entomologiczne. Bulletin Entomologique de la Pologne, Lwow (Lemberg). — Pol.
- Pozsonyi Orv-term. Egl. Közlem.*—A Pozsonyi Orvos-Termesztudományi Egylet Közleményei. Pozsony. [Verhandlungen des Vereins für Natur- und Heilkunde zu Pozsony (Pressburg).] — Hun.
- Prace Zool. Muz. Przyro. Warszawa.*—Prace Zoologiczne Polskiego Panstwowego Muzeum Przyrodniczego. Annales Zoologici Musei Polonici Historiae Naturalis, Warszawa. — Pol.
- Proc. Acad. Nat. Sci., Philadelphia.*—Proceedings of the Academy of Natural Sciences of Philadelphia, Philadelphia, Pa. — U.S.
- Proc. Acadian Ent. Soc., Truro.*—Proceedings of the Acadian Entomological Society of Nova Scotia, Truro, N.S. — Can.
- Proc. Amer. Acad. Arts Sci., Boston.*—Proceedings of the American Academy of Arts and Sciences, Boston, Mass. — U.S.
- Proc. Amer. Phil. Soc., Philadelphia.*—Proceedings of the American Philosophical Society, Philadelphia, Pa. — U.S.

- Proc. Amer. Ass. Adv. Sci., Washington, D.C.*—Proceedings of the Amer. Ass. for the Advancement of Science. Washington, D.C. [formerly Easton, Pa.] — U.S.
- Proc. Biol. Soc., Washington.*—Proceedings of the Biological Society of Washington, D.C. — U.S.
- Proc. Birmingham Nat. Hist. Phil. Soc.*—Proceedings of the Birmingham Natural History and Philosophical Society, Birmingham. — U.K.
- Proc. Boston Soc. Nat. Hist.*—Proceedings of the Boston Society of Natural History, Boston, Mass. — U.S.
- Proc. Bournemouth Nat. Sci. Soc.*—Proceedings of the Bournemouth Natural Science Society. Bournemouth. — U.K.
- Proc. Cal. Acad. Sci., San Francisco.*—Proceedings of the California Academy of Sciences, San Francisco, Cal. — U.S.
- Proc. Cambridge Phil. Soc.*—Proceedings of the Cambridge Philosophical Society, Cambridge. — U.K.
- Proc. Colo. Mus. N. H. Denver.*—Proceedings of the Colorado Museum of Natural History, Denver. — U.S.
- Proc. Colo. Sci. Soc., Denver.*—Proceedings of the Colorado Scientific Society, Denver. — U.S.
- Proc. Cotteswold Nat. F. Cl., Gloucester.*—Proceedings of the Cotteswold Naturalists' Field Club, Gloucester. — U.K.
- Proc. Croydon Nat. Hist. Sci. Soc.*—Proceedings of the Croydon Natural History and Scientific Society. Croydon. — U.K.
- Proc. Davenport Acad. Nat. Sci.*—Proceedings of the Davenport Academy of Natural Sciences, Davenport, Iowa. — U.S.
- Proc. Dorset Nat. Hist. F. Cl., Dorchester.*—Proceedings of the Dorset Natural History and Antiquarian Field Club, Dorchester. — U.K.
- Proc. Ent. Soc., Brit. Col., Vancouver.*—Proceedings of the Entomological Society of British Columbia, Vancouver, B.C. — Can.
- Proc. Ent. Soc., Washington.*—Proceedings of the Entomological Society of Washington, Washington, D.C. — U.S.
- Proc. Geol. Ass., London.*—Proceedings of the Geologists' Association, London. — U.K.
- Proc. Hawaii Ent. Soc., Honolulu, H.I.*—Proceedings of the Hawaiian Entomological Society. Honolulu. — Hawaiian Is.
- Proc. Holmesdale Nat. Hist. Cl., Reigate.*—Proceedings of the Reigate Natural History Club, Reigate. — U.K.
- Proc. I. of Wight N.H. Soc., Newport.*—Proceedings of the Wight Natural History Society, Newport, I.W. — U.K.
- Proc. Indiana Acad. Sci., Fort Wayne.*—Proceedings of the Indiana Academy of Science, Fort Wayne. — U.S.
- Proc. Intern. zool. Congr.*—Proceedings of the International Zoological Congress.
- Proc. Iowa Acad. Sci., Des Moines.*—Proceedings of the Iowa Academy of Science, Des Moines, Iowa. — U.S.
- Proc. Linn. Soc., London.*—Proceedings of the Linnean Society, London.
- Proc. Linn. Soc. N.S. Wales, Sydney.*—Proceedings of the Linnean Society of New South Wales, Sydney. — U.S.

Proc. Linn. Soc., New York.—Proceedings of the Linnean Society of New York, N.Y. — U.S.

Proc. Lit. Phil. Soc., Liverpool.—Proceedings of the Literary and Philosophical Society of Liverpool. — U.K.

Proc. Liverpool Geol. Soc.—Proceedings of the Liverpool Geological Society, Liverpool. — U.K.

Proc. Liverpool Nat. F. Cl.—Proceedings of the Liverpool Naturalists' Field Club, Liverpool. — U.K.

Proc. Malac. Soc., London.—Proceedings of the Malacological Society of London, London. — U.K.

Proc. Nat. Acad. Sci., Washington.—Proceedings of the National Academy of Sciences, Washington, D.C. — U.S.

Proc. Nat. Sci. Soc., Cheltenham.—Proceedings of the Natural Science Society, Cheltenham. — U.K.

Proc. New Engl. Zool. Cl., Cambridge, Mass.—Proceedings of the New England Zoological Club, Cambridge, Mass. — U.S.

Proc. Nova Scotian Inst. Sci., Halifax, N.S.—Proceedings and Transactions of the Nova Scotian Institute of Science, Halifax, N.S. — Can.

Proc. Ohio Acad. Sci., Columbus.—Proceedings of the Ohio State Academy of Sciences, Columbus, Ohio. — U.S.

Proc. Portland Soc. Nat. Hist., Portland, Me.—Proceedings of the Portland Society of Natural History, Portland, Me. — U.S.

Proc. R. Irish Acad., Dublin.—Proceedings of the Royal Irish Academy, Dublin. — U.K.

Proc. R. Phil. Soc., Glasgow.—Proceedings of the Royal Philosophical Society of Glasgow. — U.K.

Proc. R. Physical Soc., Edinburgh.—Proceedings of the Royal Physical Society of Edinburgh. — U.K.

Proc. R. Soc., Edinburgh.—Proceedings of the Royal Society of Edinburgh. — U.K.

Proc. R. Soc., London.—Proceedings of the Royal Society, London. — U.K.

Proc. R. Soc. Queensland, Brisbane.—Proceedings of the Royal Society of Queensland, Brisbane. — Austral.

R. Soc. Vict., Melbourne.—Proceedings of the Royal Society of Victoria, Melbourne. — Austral.

Oxford N.H. Soc., Oxford.—Proceedings and Report of the Ashmolean Natural History Society, Oxford. — U.K.

Bulawayo.—Proceedings of the Rhodesia Scientific Association, Bulawayo. — S. Afr.

Rochester, N.Y.—Proceedings of the Rochester Academy of Sciences, Rochester, N.Y. — U.S.

Soc., London.—Proceedings of the South London Natural History Society, London. — U.K.

—Proceedings of the Sections of Sciences, which happen, Amsterdam. — Hol.

—Proceedings of the Society for Experimental Science, New York. — U.S.

Somerset Soc., Taunton.—Proceedings of the Somersetshire Society, Taunton. — U.K.

- Proc. Suffolk Inst. Arch. N.H., Ipswich.*—Proceedings of Suffolk Institute of Archaeology and Natural History, Ipswich. — U.K.
- Proc. Trans. Liverpool Biol. Soc.*—Proceedings and Transactions of the Liverpool Biological Society, Liverpool. — U.K.
- Proc. Trans. R. Soc. Can., Ottawa.*—Proceedings and Transactions of the Royal Society of Canada, Ottawa. — Can.
- Proc. Univ. Durham Phil. Soc., Newcastle.*—Proceedings of the University of Durham Philosophical Society, Newcastle-upon-Tyne. — U.K.
- Proc. U.S. Nat. Mus., Washington.*—Smithsonian Institution. U.S. National Museum. Proceedings, Washington, D.C. — U.S.
- Proc. Warwick. F. Cl.*—Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club, Warwick. — U.K.
- Proc. Yorks. Geol. Soc., Halifax.*—Proceedings of the Yorkshire Geological Society, Halifax, Leeds, etc., etc. — U.K.
- Proc. Zool. Soc., London.*—Proceedings of the Zoological Society, London. — U.K.
- Proc.-verb. soc. linn., Bordeaux.*—Procès-verbaux de la Société Linnéenne de Bordeaux. — Fr.
- Proc.-verb. soc. sci. phys. nat., Bordeaux.*—Procès-verbaux de la société des sciences physiques et naturelles de Bordeaux. — Fr.
- Prof. Paprs. U.S. Geol. Surv., Washington.*—Department of the Interior. United States Geological Survey. Professional Papers. Washington, D.C. — U.S.
- Psyche, Boston, Mass.*—Psyche. (Cambridge Entomological Club), Boston, Mass. — U.S.
- Pubbl. Ist. st. sup., Firenze.*—Pubblicazioni del Istituto di studi superiori, Firenze, — It.
- Pubbl. Staz. Zool., Napoli.*—Pubblicazioni della Stazione Zoologica di Napoli. Publ. Milano. — It.
- *Publ. Adamachi Ac. Română, Bucuresci.*—Academia Română. Publicațiunile fondului Vasile Adamachi, Bucuresci. — Rou.
- Publ. explor. mer., Copenhagen.*—Conseil permanent international pour l'exploration de la mer. Publications de circonstance. Copenhagen. — Den.
- Publ. Inst., Luxembourg.*—Publications de l'Institut grand-ducal de Luxembourg. Section des sciences naturelles et mathématiques. Luxembourg. — Lux.
- Publ. Junta Cièn. Nat., Barcelona.*—Publicacions de la Junta de Ciències Naturals de Barcelona. — Spain.
- Publ. Michigan Geol. Biol. Surv., Fort Wayne.*—Michigan Geological and Biological Survey. Publications; Geol. Ser. and Biol. Ser. Printed at Fort Wayne, Ind. — U.S.
- Publ. Puget Sound Biol. St., Seattle.*—Publications of the Puget Sound Marine Biological Station of the University of Washington, Seattle, Wash. — U.S.
- Publ. Q' island. Geol. Surv., Brisbane.*—Publications. Queensland Geological Survey, Brisbane. — Austral.
- Publ. Univ. Ser. Leland Stanford, Palo Alto, Cal.*—Publications. University Series. Leland Stanford Junior University, Palo Alto, Cal. — U.S.
- Publ. West Virginia Geol. Surv., Morgantown.*—Publications of the West Virginian Geological Survey, Morgantown, W. Va. — U.S.

- Q. J. Exp. Physiol., London.*—Quarterly Journal of Experimental Physiology. London. — U.K.
- Q. J. Geol. Soc., London.*—Quarterly Journal of the Geological Society. London. — U.K.
- Q. J. Microsc. Sci., London.*—Quarterly Journal of Microscopical Science, London. — U.K.
- Queensl. Agric. J., Brisbane.*—Queensland Agricultural Journal, Brisbane. — Austral.
- Queensl. Nat., Brisbane.*—The Queensland Naturalist. The Organ of the Field Naturalist's Club and its branches. Brisbane. — Austral.
- Rad. Jugoslav. Ak., Zagreb.*—Rad Jugoslavenske akademije znanosti i umjetnosti. [Transactions of the South Slav Academy of Art and Science.] Zagreb. — Jugoslav.
- Rapp. et proc.-verb. explor. mer., Copenhagen.*—Conseil permanent international pour l'exploration de la mer. Ser. Rapports et procès-verbaux. Copenhagen. — Den.
- Rec. Albany Mus., Grahamstown.*—Records of the Albany Museum, Grahamstown. — S. Africa.
- Rec. Austr. Mus., Sydney.*—Records of the Australian Museum, Sydney. — Austral.
- Rec. Canterbury Mus., Christchurch, N.Z.*—Records of the Canterbury Museum, Christchurch. — N.Z.
- Rec. Caradoc F. Cl., Shrewsbury.*—Record of Bare Facts, Caradoc and Severn Valley Field Club, Shrewsbury. — U.K.
- Rec. Geol. Surv., Calcutta.*—The Records of the Geological Survey of India. Calcutta. — Ind.
- Rec. Geol. Surv. N.S. Wales, Sydney.*—Records of the Geological Survey of New South Wales, Sydney. — Austral.
- Rec. Geol. Surv. Victoria, Melbourne.*—Records of the Geological Survey of Victoria, Melbourne. — Austral.
- Rec. Ind. Mus., Calcutta.*—Records of the Indian Museum, Calcutta. — Ind.
- Rec. S. Aust. Mus., Adelaide.*—Records of the South Australian Museum, Adelaide, Australia.
- Rec. W. Aust. Mus., Perth.*—Records of the Western Australian Museum, Perth. — Austral.
- Redia, Firenze.*—Redia, Giornale d'Entomologia, Firenze. — It.
- Rend. Acc. sc., Bologna.*—Rendiconti dell'Accademia delle scienze dell'Istituto, Bologna. — It.
- Rend. Acc. sc., Napoli.*—Rendiconti dell'Accademia delle scienze fisiche e matematiche, Napoli. — It.
- Rend. Ist. lomb., Milano.*—Rendiconti dell'Istituto lombardo di scienze e lettere, Milano. — It.
- Rend. Mem. Acc. Zelanti, Acireale.*—Rendiconti e Memorie della R. Accademia degli Zelanti, Acireale. — It.
- Rep. Australian Assoc. Adv. Sci.*—Report of the Australasian Association for the Advancement of Science. Sydney, Melbourne, etc., etc. — Austral.
- Rep. Brit. Ass., London.*—Report of the British Association for the Advancement of Science, London. — U.K.

- Rep. Bureau Fisheries, Washington.*—Department of Commerce and Labor. Report of the Bureau of Fisheries. Washington, D.C. — U.S.
- Rep. Clifton Coll., Sci. Soc.*—Report of the Clifton College Scientific Society. — U.K.
- Rep. Danish Biol. St., Copenhagen.*—Report of the Danish Biological Station. Copenhagen. — Denm.
- Rep. Dove Mar. Lab. Cullercoats.*—Report. Dove Marine Laboratory, Cullercoats Northumberl. — U.K.
- Rep. Epsom Coll. Nat. Hist. Soc., London.*—Report of the Epsom College Natural History Society. Epsom, printed London. — U.K.
- Rep. Felsted Sch. Sci. Soc.*—Report of the Felsted Schools Scientific Society, Felsted, Essex. — U.K.
- Rep. Marlborough Coll. Nat. Hist. Soc.*—Report of the Marlborough College Natural History Society, Marlborough. — U.K.
- Rep. Mich. Acad. Sci., Ann Arbor.*—Report of the Michigan Academy of Science, Ann Arbor (printed Lansing), Mich. — U.S.
- Rep. Reading Lit. Sci. Soc.*—Report and Proceedings of the Reading Literary and Scientific Society, Reading. — U.K.
- Rep. Rugby Sch. Nat. Hist. Soc.*—Report of the Rugby School Natural History Society, Rugby. — U.K.
- Rep. Southport Soc. Nat. Sci.*—Report of the Southport Society of Natural Science, Southport. — U.K.
- Rep. Trans. Devon. Ass., Plymouth.*—Report and Transactions of the Devonshire Association, Plymouth. — U.K.
- Rep. Trans. Ealing Sci. Microsc. Soc.*—Report and Transactions of the Ealing Scientific and Microscopical Society, Ealing. — U.K.
- Rep. Trans. Guernsey Soc. Nat. Sci.*—Report and Transactions of the Guernsey Society of Natural Science, Guernsey. — U.K.
- Rep. U.S. Com. Fish., Washington.*—Bureau of Fisheries. Report of the United States Commissioner of Fisheries. Washington, D.C. — U.S.
- Rep. Whitby Lit. Phil. Soc.*—Report of the Whitby Literary and Philosophical Society, Whitby. — U.K.
- Rés. camp. sci., Monaco.*—Résultats des campagnes scientifiques de S. A. le Prince de Monaco, Monaco. — Mon.
- Rev. Acad. Ci., Madrid.*—Revista de la Real Academia de Ciencias exactas, físicas y naturales de Madrid. Madrid. — Spain.
- Rev. Applied Entom., London.*—Review of Applied Entomology, London. — U.K.
- Rev. chilena, Valparaiso.*—Revista chilena de historia natural. Organó del museo de Valparaiso. — Chile.
- Rev. crit. paléozool., Paris.*—Revue critique de paléozoologie. Paris. — Fr.
- Rev. Ent., Caen.*—Revue d'Entomologie. Caen (Calvados). — Fr.
- Rev. Fr. d'Orn., Paris.*—Revue Française d'Ornithologie, Scientifique et Pratique. Paris. — Fr.
- Rev. gén. sci., Paris.*—Revue générale des sciences pures et appliquées. Paris. — Fr.
- Rev. Geol., Liege.*—Revue de Géologie. Liege. — Bel.

- Rev. Jard. Zool., Buenos Aires.*—Revista del Jardín zoológico de Buenos Aires. Buenos Aires. — Argent.
- Rev. Mus. La Plata, Buenos Aires.*—Revista del Museo de la Plata, Buenos Aires. — Argent.
- Rev. Mus., São Paulo.*—Revista do Museu Paulista, São Paulo. — Brazil.
- Rev. sci. Bourbon., Moulins.*—Revue scientifique du Bourbonnais et du Centre de la France. Moulins (Allier). — Fr.
- Rev. sci., Paris.*—Revue scientifique de la France et de l'étranger. Paris. — Fr.
- Rev. Suisse Zool., Genève.*—Revue suisse de Zoologie. Annales de la Société zoologique suisse et du Musée d'histoire naturelle de Genève. — Swi.
- Rev. Zool. Africaine, Bruxelles.*—Revue Zoologique africaine. Bruxelles. — Bel.
- Rev. Zool. Russe, Moscow.*—Revue Zoologique Russe. Russky Zoologicheskoy Journal, Moscow. — Rus.
- Riv. Biol., Roma.*—Rivista di Biologia, Roma. — It.
- Riv. Ital. Neuropatol., Catania.*—Rivista italiana di Neuropatologia di Catania. — It.
- Riv. Ital. Orn., Bologna.*—Rivista italiana di ornitologia, Bologna. — It.
- Riv. ital. paleont., Parma.*—Rivista italiana di paleontologia, Parma [formerly Bologna]. — It.
- Riv. patol. nerv. ment., Firenze.*—Rivista di patologia nervosa e mentale, Firenze. — It.
- Riviera Scient., Nice.*—Riviera Scientifique: Bulletin de l'association des naturalistes de Nice et des Alpes-Maritimes. Nice. — Fr.
- Rochester Nat.*—Rochester Naturalist, Rochester. — U.K.
- Rovart. L., Budapest.*—Rovartani Lapok, Budapest. [Entomologische Blätter, Budapest.] — Hun.
- Rozpr. Ceské Ak. Frant. Jos., Prag.*—Rozpravy České Akademie Císaře Františka Josefa pro Vědy, Slovesnost' a Umění. Praha (Prague). [Abhandlungen der Tschechischen Kaiser Franz Josefs-Akademie für Wissenschaft, Literatur und Kunst.] — Czecho-Slov.
- Russ. Hydrobiol. Zeits., Saratov.*—Russische Hydrobiologische Zeitschrift (in Russian), Saratov. — Russ.
- S. Afric. J. Nat. Hist., Pretoria.*—The South African Journal of Natural History, being the Official Organ of the South African Biological Society with which is incorporated the South African Ornithologists' Union. Pretoria. — S. Afr.
- S. Afric. J. Sci., Johannesburg.*—The South African Journal of Science, Johannesburg. — S. Afr.
- S. Austral. Nat., Adelaide.*—The South Australian Naturalist, Adelaide. — Austral.
- S. Austral. Orn., Adelaide.*—The South Australian Ornithologist. A Magazine of Ornithology. Adelaide. — Austral.
- S. E. Nat., London.*—The South Eastern Naturalist. Report and Transactions of the South-Eastern Union of Scientific Societies. London. — U.K.
- Samml. Geol. Reichsmus., Leiden.*—Sammlungen des Geologischen Reichsmuseums in Leiden. Leiden. — Hol.
- Sarawak Museum Journ.*—The Sarawak Museum Journal, Sarawak (printed Singapore). — Borneo.
- Schr. Ges. Natw., Marburg.*—Schriften der Gesellschaft zur Beförderung der gesamten Naturwissenschaften zu Marburg. — Ger.

- Schr. natf. Ges., Danzig.*—Schriften der naturforschenden Gesellschaft in Danzig.
— Ger.
- Schr. natw. Ver., Kiel.*—Schriften des naturwissenschaftlichen Vereins für Schleswig-Holstein. Kiel. — Ger.
- Schr. physik. Ges., Königsberg.*—Schriften der physikalisch-ökonomischen Gesellschaft zu Königsberg. — Ger.
- Schr. Ver. Verbr. Natw. Kenntn., Wien.*—Schriften der Vereins zur Verbreitung Naturwissenschaftlicher Kenntnisse in Wien. [Nebentitel:] Populäre Vorträge aus allen Fächern der Naturwissenschaft, hrsg. vom Vereine zur Verbreitung Naturwissenschaftlicher Kenntnisse in Wien. — Aus.
- Schweiz.-Arch. Thierheilk., Zürich.*—Schweizer-Archiv für Thierheilkunde. Zürich.
— Swi.
- Sci. Bul. Mus., Brooklyn.*—The Museum of the Brooklyn Institute of Arts and Science. Science Bulletin, Brooklyn, N.Y. — U.S.
- Sci. Bul. Univ., Kansas, Lawrence.*—Science Bulletin. Bulletin of the University of Kansas. Lawrence, Kan. [Includes Kansas University Quarterly.]
— U.S.
- Sci. Invest. Fish., Dublin.*—Scientific Investigations. Fisheries Branch. Department of Agriculture, etc., etc., Ireland. Dublin. — U.K.
- Sci. Invest. Fish., Edinburgh.*—Scientific Investigations. Fishery Board of Scotland. Edinburgh. — U.K.
- Sci. Mem. Med. Ind., Calcutta.*—Scientific Memoirs by the Medical Officers of the Army of India, Calcutta. — Ind.
- Sci. Proc. R. Dublin Soc.*—Scientific Proceedings of the Royal Dublin Society, Dublin. — U.K.
- Sci. Progr., London.*—Science Progress in the Twentieth Century. A quarterly journal of scientific work and thought. London. — U.K.
- Sci. Rep. Tohoku Imp. Univ., Sendai.*—Science Reports of the Tohoku Imperial University. *European languages.* Sendai. — Japan.
- Science, New York, N.Y.*—Science, New York, N.Y. — U.S.
- Scientia, Bologna.*—Scientia. Rivista internazionale di sintesi scientifica, Bologna.
— It.
- Scol. Nat., Edinburgh.*—The Scottish Naturalist (with which is incorporated The Annals of Scottish Natural History). Edinburgh. — U.K.
- Senckenbergiana Frankfurt a. M.*—Senckenbergiana: Wissenschaftliche Mitteilungen herausgegeben von der Senckenbergischen Naturforschenden Gesellschaft in Frankfurt a. M. — Ger.
- Singapore Nat.*—The Singapore Naturalist. Being the Official Organ of the Singapore Natural History Society, Singapore. — Str. Settl.
- SitzBer. Ak. Wiss., Berlin.*—Sitzungsberichte der kgl. preussischen Akademie der Wissenschaften. Berlin. — Ger.
- SitzBer. Ak. Wiss., Heidelberg.*—Sitzungsberichte der Heidelberger Akademie der Wissenschaften. Heidelberg. — Ger.
- SitzBer. Ak. Wiss., München.*—Sitzungsberichte der kgl. bayerischen Akademie der Wissenschaften zu München. München. — Ger.

- SitzBer. Ak. Wiss., Wien.*—Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Klasse. Wien.
— Aus.
- SitzBer. Böhm. Ges. Wiss., Prag.*—Sitzungsberichte der Königlich Böhmisches Gesellschaft der Wissenschaften. Mathematisch-Naturwissenschaftliche Klasse. Prag. — Czecho-Slov.
- SitzBer. Ges. natf. Freunde, Berlin.*—Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin. — Ger.
- SitzBer. Ges. Natw., Marburg.*—Sitzungsberichte der Gesellschaft zur Beförderung der gesammten Naturwissenschaften in Marburg. — Ger.
- SitzBer. Isis., Dresden.*—Sitzungsberichte und Abhandlungen der naturwissenschaftlichen Gesellschaft Isis in Dresden. — Ger.
- SitzBer. natf. Ges., Leipzig.*—Sitzungsberichte der naturforschenden Gesellschaft zu Leipzig. — Ger.
- Sitz Ber. Naturhist. Ver. Rheinl., Bonn.*—Sitzungsberichte herausgegeben von naturhistorischen Verein der Preussischen Rheinlande und Westfalens, Bonn. — Ger.
- SitzBer. physik. Ges., Würzburg.*—Sitzungsberichte der physikalischmedizinischen Gesellschaft zu Würzburg. — Ger.
- SitzBer. physik. Soc., Erlangen.*—Sitzungsberichte der physikalisch-medicinischen Societät zu Erlangen. — Ger.
- Skand. Arch. Physiol., Leipzig.*—Skandinavisches Archiv für Physiologie. Leipzig.
— Ger.
- Skr. Havunders. Kjöbenhavn.*—Skrifter udgivne af Kommissionen for Havundersøgelse, Kjöbenhavn. — Den.
- Skr. K. Dansk. Vid. Selsk., Kjöbenhavn.*—Det kongelige danske Videnskabernes Selskabs Skrifter. Naturvidenskabelig og matematisk Afdeling, Kjöbenhavn.
— Den.
- Skr. K. Norske Vid. selsk., Trondhjem.*—Det kongelige norske Videnskabernes Selskabs Skrifter, Trondhjem. — Nor.
- Skr. Vid. selsk., Kristiania.*—Skrifter udgivne af Videnskabsselskabet i Kristiania.
— Nor.
- Smithsonian Contr. Knowl., Washington.*—Smithsonian Institution. Smithsonian Contributions to Knowledge, Washington, D.C. — U.S.
- Smithsonian Misc. Collect., Washington.*—Smithsonian Institution, Smithsonian Miscellaneous Collections, Washington, D.C. — U.S.
- Soc. Entomol., Frankfurt a. M.*—Societas entomologica. Organ für den internationalen Entomologer-Verein. Frankfurt a. M. — Ger.
- Soc. Entomol., Stuttgart.*—Societas entomologica. Stuttgart. — Ger.
- Spelunca, Paris.*—Spelunca. Bulletin et Mémoires de la société de spéléologie. Paris. — Fr.
- Spolia Zeylan., Colombo.*—Spolia Zeylanica. Issued by the Colombo Museum, Ceylon. Colombo. — Ceylon.
- Spraw. Kom. fizyogr., Kraków.*—Sprawozdanie Komisji fizyograficznej, obejmujące pogląd na czynności dokonane w ciągu roku . . ., oraz Materyały do fizyografii krajowej, Kraków. — Pol.
- Spraw. Tow. Nauk., Warszawa.*—Sprawozdania Towarzystwa Naukowego Warszawskiego. [Proceedings of the Scientific Society in Warsaw.] — Pol.

- Stud. Zool. Lab. Univ. Nebr., Lincoln.*—Studies from the Zoological Laboratory. University of Nebraska. Lincoln. — U.S.
- Sveriges Geol. Unders., Stockholm.*—Sveriges Geologiska Undersökning. Serien A. Kartblad med, beskrifningar. Serien B. Översigtskartor, Specialkartor. Serien C. Afhandlingar och uppsatser. Stockholm. — Swe.
- Sudan Notes and Rec., Khartoum.*—Sudan Notes and Records. Khartoum. — Egyptian-Sudan.
- Sum. Rep. Geol. Surv. Can., Ottawa.*—Geological Survey of Canada. Summary Reports, Ottawa. — Can.
- Suppl. ent., Berlin.*—Supplementa entomologica, hrsg. v. Deutschen entomologischen Museum. Berlin. — Ger.
- Termt. Közl., Budapest.*—Természettudományi Közlöny, Budapest. [Naturwissenschaftliche Mittheilungen, Budapest.] — Hun.
- Tierärztl. ZentrBl., Wien.*—Tierärztliches Zentralblatt hrsg. vom Vereine der Tierärzte in Oesterreich. Wien. — Aus.
- Tierwelt, Aarau.*—Die Tierwelt. Zeitung für Ornithologie, Geflügel- und Kaninchenzucht. Aarau. 4to. — Swi.
- Tijdschr. Ent., 's Gravenhage.*—Tijdschrift voor Entomologie uitgegeven door de Nederlandsche entomologische Vereeniging, 's Gravenhage. — Hol.
- Tijdschr. K. Ned. Aardr. Gen., Amsterdam.*—Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap, Amsterdam. Printed at Leiden. — Hol.
- Tijdschr. Ned. Dierk. Ver., Helder.*—Tijdschrift der Nederlandsche Dierkundige Vereeniging, Leiden. — Hol.
- Timehri, Georgetown.*—Timehri. The Journal of the Royal and Agricultural Society of British Guiana, Georgetown. — Brit. Guiana.
- Tori, Tokio.*—Tori (Birds). Published by the Japanese Ornithological Association. Tokio. — Jap.
- Trab. Mus. Cien. Nat., Madrid.*—Trabajos del Museo Nacional de Ciencias Naturales. Ser. Zoologica. Ser. Geológica. Madrid. — Spain.
- Trans. Acad. Sci., St. Louis, Mo.*—Transactions of the Academy of Science of St. Louis, Mo. — U.S.
- Trans. Amer. Ent. Soc., Philadelphia.*—Transactions of the American Entomological Society, Academy of Natural Sciences of Philadelphia, Philadelphia, Pa. — U.S.
- Trans. Amer. Microsc. Soc., Menasha, Wis.*—Transactions of the American Microscopical Society, Menasha, Wis. — U.S.
- Trans. Amer. Phil. Soc., Philadelphia.*—Transactions of the American Philosophical Society, Philadelphia, Pa. — U.S.
- Trans. Buchan F. Cl., Peterhead.*—Transactions of the Buchan Field Club, Peterhead. — U.K.
- Trans. Burton-on-Trent Nat. Hist. Soc.*—Transactions of the Burton-on-Trent Natural History and Archaeological Society, Burton-on-Trent. — U.K.
- Trans. Buteshire Nat. Hist. Soc., Rothesay.*—Transactions of the Buteshire Natural History Society. Rothesay. — U.K.

- Trans. Canad. Inst., Toronto.*—Transactions of the Royal Canadian Institute, Toronto. — Can.
- Trans. Caradoc F. Cl., Shrewsbury.*—Transactions of the Caradoc and Severn Valley Field Club, Shrewsbury. — U.K.
- Trans. Cardiff Nat. Soc.*—Transactions of the Cardiff Naturalists' Society, Cardiff. — U.K.
- Trans. Conn. Acad. Arts Sci., New Haven.*—Transactions of the Connecticut Academy of Arts and Sciences, New Haven. — U.S.
- Trans. Dumfries Nat. Hist. Soc.*—Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society, Dumfries. — U.K.
- Trans. Eastbourne Nat. Hist. Soc.*—Transactions of the Eastbourne Natural History Society, Eastbourne. — U.K.
- Trans. Edinburgh F. Nat. Soc.*—Transactions of the Edinburgh Field Naturalists', etc., Society, Edinburgh. — U.K.
- Trans. Edinburgh Geol. Soc.*—Transactions of the Edinburgh Geological Society, Edinburgh. — U.K.
- Trans. Ent. Soc., London.*—Transactions of the Entomological Society (includes Proceedings), London. — U.K.
- Trans. Geol. Soc., Glasgow.*—Transactions of the Geological Society of Glasgow, Glasgow. — U.K.
- Trans. Geol. Soc. S. Africa, Johannesburg.*—Transactions of the Geological Society of South Africa, Johannesburg. — S. Afr.
- Trans. Guernsey Soc. N. Sci., Guernsey.*—Transactions of the Guernsey Society of Natural Science and Local Research, Guernsey. — U.K.
- Trans. Hert. Nat. Hist. Soc., Watford.*—Transactions of the Hertfordshire Natural History Society and Field Club, Watford and St. Albans. — U.K.
- Trans. Highl. Soc. Scot., Edinburgh.*—Transactions of the Highland and Agricultural Society of Scotland, Edinburgh. — U.K.
- Trans. Hull Sci. F. Nat. Cl.*—Transactions of the Hull Scientific and Field Naturalists' Club, Hull. — U.K.
- Trans. Hull Geol. Soc.*—Transactions of the Hull Geological Society, Hull. — U.K.
- Trans. Inverness Sci. Soc.*—Transactions of the Inverness Scientific Society, etc. Inverness. — U.K.
- Trans. Kan. Acad. Sci., Topeka.*—Transactions of the Kansas Academy of Science, Topeka. — U.S.
- Trans. Leicester Lit. Phil. Soc.*—Transactions of the Leicester Literary and Philosophical Society, Leicester. — U.K.
- Trans. Lincoln. Nat. Union, Louth.*—Transactions. Lincolnshire Naturalists' Union, Louth. — U.K.
- Trans. Linn. Soc., London.*—Transactions of the Linnean Society, London. 4to. — U.K.
- Trans. London Nat. Hist. Soc.*—(See London Naturalist.)
- Trans. Manchester Geol. Soc.*—Transactions of the Manchester Geological and Mining Society, Manchester. — U.K.

- Trans. Nat. Hist. Soc., Newcastle.*—Transactions of the Natural History Society of Northumberland, Durham and Newcastle-on-Tyne. Publ. London. — U.K.
- Trans. N. Staff. F. Cl., Stafford.*—Transactions of the North Staffordshire Naturalists' Field Club, and Archæological Society, Stafford. — U.K.
- Trans. Norfolk Nat. Soc., Norwich.*—Transactions of the Norfolk and Norwich Naturalists' Society, Norwich. — U.K.
- Trans. Paisley Nat. Sci.*—Transactions of the Paisley Naturalists' Society, Paisley. — U.K.
- Trans. Perth Soc. Nat. Sci.*—Transactions of the Perthshire Society of Natural Science, Perth. — U.K.
- Trans. Phil. Soc., Cambridge, U.K.*—Transactions of the Cambridge Philosophical Society, Cambridge, U.K.
- Trans. Proc. N. Zeal. Inst., Wellington.*—Transactions and Proceedings of the New Zealand Institute, Wellington. — N.Z.
- Trans. Proc. R. Soc. S. Aust., Adelaide.*—Transactions and Proceedings of the Royal Society of S. Australia. Adelaide. — Australia.
- Trans. R. Geol. Soc., Cornwall, Penzance.*—Transactions of the Royal Geological Society of Cornwall, Penzance. — U.K.
- Trans. R. Irish Acad., Dublin.*—Transactions of the Royal Irish Academy, Dublin. — U.K.
- Trans. R. Soc., Edinburgh.*—Transactions of the Royal Society of Edinburgh. 4to. — U.K.
- Trans. R. Soc. S. Africa, Cape Town.*—Transactions of the Royal Society, South Africa, Cape Town. — S. Afr.
- Trans. R. Soc. Trop. Med. Hyg. London.*—Transactions of the Royal Society of Tropical Medicine and Hygiene, London. — U.K.
- Trans. R. Soc. Vict., Melbourne.*—Transactions of the Royal Society of Victoria, Melbourne. — Australia.
- Trans. Rochdale Lit. Sci. Soc.*—Transactions of the Rochdale Literary and Scientific Society, Rochdale. — U.K.
- Trans. Shropsh. Archæol. Nat. Hist. Soc., Shrewsbury.*—Transactions of the Shropshire Archæological and Natural History Society, Shrewsbury. — U.K.
- Trans. Stirling Nat. Hist. Soc.*—Transactions of the Stirling Natural History, etc., Society, Stirling. — U.K.
- Trans. Wis. Acad. Sci., Madison.*—Transactions of the Wisconsin Academy of Sciences, Arts and Letters, Madison. — U.S.
- Trans. Woolhope Nat. F. Cl., Hereford.*—Transactions of the Woolhope Naturalists' Field Club, Hereford. — U.K.
- Trans. Worcester. Nat. Cl.*—Transactions of the Worcestershire Naturalists' Club, Worcester. — U.K.
- Trans. Yorks. Nat. U., Leeds.*—Transactions of the Yorkshire Naturalists' Union, Leeds. — U.K.
- Trans. Zool. Soc., London.*—Transactions of the Zoological Society, London. 4to. — U.K.
- Trav. Inst. Zool. Univ., Montpellier, Cette.*—Travaux de l'Institut de Zoologie de l'Université de Montpellier et de la station zoologique de Cette, Cette. — Fr.

- Trav. Lab. géol., Grenoble.*—Travaux laboratoire de géologie de l'Université de Grenoble. Grenoble. — Fr.
- Trav. Lab. Géol., Lyon.*—Travaux du Laboratoire de Géologie de la Faculté des Sciences de Lyon. — Fr.
- Trav. mém. Fac., Lille.*—Travaux et mémoires des Facultés de Lille (Nord). — Fr.
- Treubia, Batavia.*—Treubia, Recueil de Travaux zoologiques, etc. Jardin Botanique de Buitenzorg, Batavia. — Dutch Ind.
- Tromsø Mus., Aarsb.*—Tromsø Museums Aarsberetning, Tromsø, Norv.
- Tromsø Mus., Aarsb.*—Tromsø Museum Aarshefter, Tromsø, Norv.
- Tuft's Coll. Stud., Mass.*—Tuft's College Studies. (Scientific Series.) Tuft's College, Mass. — U.S.
- Umschau, Frankfurt a. M.*—Die Umschau. Uebersicht über die Fortschritte und Bewegungen auf dem Gesamtgebiet der Wissenschaft, Technik, Litteratur und Kunst. Frankfurt a. M. — Ger.
- Univ. Cal. Pub. Zool., Berkeley.*—University of California Publications. Zoology, Geology, Physiology, etc. Berkeley, Cal. — U.S.
- Univ. Colo. Stud., Boulder.*—The University of Colorado Studies. Boulder, Colo. — U.S.
- Univ. Iowa Studies, Iowa City.*—University of Iowa Studies in Natural History, Iowa City. — U.S.
- Univ. Oregon Publ., Eugene, Or.*—University of Oregon Publications, Eugene, Oregon. — U.S.
- Univ. Toronto Stud.*—University of Toronto Studies. Biological, Geological and Physiological Series. Toronto. — Can.
- Upps. Prakt. Entomol., Stockholm.*—Uppsatser i Praktisk Entomologi med statsbidrag utgifna af Entomologiska Föreningen i Stockholm. — Swe.
- Upsala Läkaref. Forh.*—Upsala Läkareförenings Förhandlingar. Upsala. — Swe.
- Vasculum, Hexham.*—Vasculum, Hexham. — U.K.
- Verh. D. zool. Ges., Berlin.*—Verhandlungen der deutschen zoologischen Gesellschaft. Berlin. — Ger.
- Verh. Geol. Mijnb. Gen. (Geol. Ser.), 's Gravenhage.*—Verhandelingen van het geologisch-mijnbouwkundig Genootschap voor Nederland en Kolonien. Geologische Serie. 's Gravenhage. — Hol.
- Verh. Geol. RchsAnst., Wien.*—Verhandlungen der k. k. Geologischen Reichsanstalt. Wien. — Aus.
- Verh. Ges. D. Natf., Leipzig.*—Verhandlungen der Gesellschaft deutscher Naturforscher und Aertze. Leipzig. — Ger.
- Verh. K. Akad. Wet., 2e Sect., Amsterdam.*—Verhandelingen der Koninklijke Akademie van Wetenschappen, 2e Sectie (Naturhistorische, Geologische en Medische Wetenschappen), Amsterdam. — Hol.
- Verh. Mitt. siebenb. Ver. Naturw., Hermanstadt.*—Verhandlungen und Mittheilungen des siebenbürgischen Vereins für Naturwissenschaften in Hermanstadt. — Roumania.
- Verh. nathist. Ver., Bonn.*—Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande, Westfalens u. d. Reg.-Bez. Osnabrück. Nebst Sitzungsberichten der niederrheinischen Gesellschaft für Natur- und Heilkunde zu Bonn. — Ger.

- Verh. nathist. Ver., Heidelberg.*—Verhandlungen des naturhistorisch-medicinischen Vereins zu Heidelberg. Heidelberg. — Ger.
- Verh. Natf. Ges., Basel.*—Verhandlungen der naturforschenden Gesellschaft in Basel. Basel. — Swi.
- Verh. Natf. Ver., Brünn.*—Verhandlungen des Naturforschenden Vereines in Brünn. Brünn. — Aus.
- Verh. natw. Ver., Hamburg.*—Verhandlungen des naturwissenschaftlichen Vereins in Hamburg-Altona. Hamburg. — Ger.
- Verh. natw. Ver., Karlsruhe.*—Verhandlungen des naturwissenschaftlichen Vereins in Karlsruhe. — Ger.
- Verh. Ornith. Ges., München.*—Verhandlungen der ornithologischen Gesellschaft in Bayern. München. — Ger.
- Verh. physik. Ges., Würzburg.*—Verhandlungen der physikalisch-medicinischen Gesellschaft zu Würzburg. — Ger.
- Verh. Schweiz. Natf. Ges.*—Verhandlungen der Schweizerischen naturforschenden Gesellschaft. Aarau, Basel etc. — Swi.
- Verh. Ver. natw. Unterh., Hamburg.*—Verhandlungen des Vereins für naturwissenschaftliche Unterhaltung zu Hamburg. — Ger.
- Verh. ZoolBot. Ges., Wien.*—Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien. Wien. — Aus.
- Versl. Wis. Nat. Afd. K. Akad. Wet., Amsterdam.*—Verslag der Vergaderingen van de Wis- en Natuurkundige Afdeeling der Koninklijke Akademie van Wetenschappen, Amsterdam. — Hol.
- Věstn. České Ak., Prag.*—Věstník České Akademie Císaře Františka Josefa pro Vědy, Slovesnost a Umění. Praha (Prague). [Anzeiger der Tschechischen Kaiser Franz Josefs-Akademie für Wissenschaft, Literatur und Kunst.] — Checho-Slov.
- Věstn. Kl. Přír. Prostějov.*—Věstník klubu přírodovědeckího. [Mittheilungen des naturwissenschaftlichen Klubs. Prossnitz.] — Checko-Slov.
- Vict. Nat., Melbourne.*—The Victorian Naturalist. Melbourne. — Australia.
- Videns. Medd. nat. For., Kjöbenhavn.*—Videnskabelige Meddelelser fra naturhistorisk Forening, Kjöbenhavn. — Den.
- Vierteljahrsh. Natf. Ges., Zürich.*—Vierteljahrsschrift der naturforschenden Gesellschaft in Zürich. Zürich und München. — Swi.
- Weidmann, Olten.*—Der Weidmann. Wochenschrift für Jagd, Fischfang, Hundezucht und Naturfriede, Olten. — Swi.
- West Ind. Bul., Barbados.*—West Indian Bulletin, the Journal of the Imperial Agricultural Department for the West Indies, Barbados. — W. Ind.
- Wiener Entomol. Ztg., Wien.*—Wiener Entomologische Zeitung. Wien. — Aus.
- Wilson Bul., Oberlin, Ohio.*—Wilson Bulletin. (Wilson Ornithological Club.) Oberlin, Ohio. — U.S.
- Wilts. Archæol. Mag., Devizes.*—The Wiltshire Archæological and Natural History Magazine, Devizes. — U.K.
- Wiss. Meeresunters., Kiel.*—Wissenschaftliche Meeresuntersuchungen, hrsg. v. d. Commission zur wissenschaftlichen Untersuchung der deutschen Meere in Kiel u. der Biologischen Anstalt auf Helgoland. Kiel. — Ger.
- Yearb. Publ. Mus. Milwaukee.*—Yearbook of the Public Museum of the City of Milwaukee, Wis. — U.S.

- Yearbook U. S. Dept. Agric., Washington.*—Yearbook of the U.S. Department of Agriculture, Washington, D.C. — U.S.
- ZentrBl. Physiol., Wien.*—Zentralblatt für Physiologie. Unter Mitwirkung der Physiologischen Gesellschaft zu Berlin und der Morphologisch-Physiologischen Gesellschaft zu Wien. Wien [und Leipzig]. — Aus.
- Zool. Ann., Würzburg.*—Zoologische Annalen. Zeitschrift für Geschichte der Zoologie. Würzburg. — Ger.
- Zool. Anz., Leipzig.*—Zoologischer Anzeiger. Leipzig. — Ger.
- Zool. Beob., Frankfurt a. M.*—Zoologischer Beobachter. Organ der zoologischen Gärten Deutschlands hrsg. v. d. Neuen zoologischen Gesellschaft. Frankfurt a. M. — Ger.
- Zool. Bidr., Uppsala.*—Zoologiska Bidrag från Uppsala. — Swed.
- Zool. Jahrb., Jena.*—Zoologische Jahrbücher. 1. Abt. für Anatomie. 2. Abt. für Systematik. 3. Abt. für allgemeine Zoologie und Physiologie der Tiere. Jena. — Ger.
- Zool. Meded., Leiden.*—Zoologische Mededeelingen uitgevin vanwege 's Rijks Museum van Natuurlijke Historie te Leiden (formerly Notes Leyden Museum). — Holl.
- Zool. Soc. Bul., New York.*—Zoological Society Bulletin. New York Zoological Society, New York, N.Y. — U.S.
- Zoologica, New York.*—Zoologica. Scientific contributions of the New York Zoological Society, New York. — U.S.
- Zoologica, Stuttgart.*—Zoologica. Original-Abhandlungen aus dem Gesamtgebiete der Zoologie. Stuttgart. — Ger.
- Zoopath., New York.*—Zoopathologica. Scientific contributions of the New York Zoological Society on the diseases of animals, New York. — U.S.
- Zs. allg. Physiol., Jena.*—Zeitschrift für allgemeine Physiologie. Jena. — Ger.
- Zs. angew. Entom., Berlin.*—Zeitschrift für angewandte Entomologie. Berlin. — Ger.
- Zs. angew. Psychol., Leipzig.*—Zeitschrift für angewandte Psychologie. Leipzig. — Ger.
- Zs. Biol., München.*—Zeitschrift für Biologie. München. — Ger.
- Zs. biol. Techn., Strassburg.*—Zeitschrift für biologische Technik und Methodik. Strassburg. — Ger.
- Zs. D. geol. Ges., Berlin.*—Zeitschrift der deutschen geologischen Gesellschaft. Berlin. — Ger.
- Zs. Ferd., Innsbruck.*—Zeitschrift des Ferdinandeums für Tirol und Vorarlberg. Innsbruck. — Aus.
- Zs. ges. Neurol., Berlin.*—Zeitschrift für die gesamte Neurologie und Psychiatrie. Berlin und Leipzig. — Ger.
- Zs. induct. Abstammungslehre, Berlin.*—Zeitschrift für induktive Abstammungs- und Vererbungslehre. — Ger.
- Zs. Morph., Stuttgart.*—Zeitschrift für Morphologie und Anthropologie. Stuttgart. — Ger.
- Zs. Natw., Leipzig.*—Zeitschrift für Naturwissenschaften. Organ des naturwissenschaftlichen Vereins für Sachsen und Thüringen. Leipzig. — Ger.
- Zs. Oologie, Neumark.*—Zeitschrift für Oologie. Organ für Wissenschaft und Liebhaberei. Neumark. — Ger.

- Zs. Psychol., Leipzig.*—Zeitschrift für Psychologie und Physiologie der Sinnesorgane. Leipzig. — Ger.
- Zs. Tiermed., Jena.*—Zeitschrift für Tiermedizin. Jena. — Ger.
- Zs. Veterinärk., Berlin.*—Zeitschrift für Veterinärkunde mit besonderer Berücksichtigung der Hygiene. Berlin. — Ger.
- Zs. wiss. Insektenbiol., Berlin.*—Zeitschrift für wissenschaftliche Insektenbiologie [früher: Allg. Zs. Ent.] Berlin. — Ger.
- Zs. wiss. Mikrosk., Leipzig.*—Zeitschrift für wissenschaftliche Mikroskopie und mikroskopische Technik. Leipzig. — Ger.
- Zs. wiss. Zool., Leipzig.*—Zeitschrift für wissenschaftliche Zoologie. Leipzig. — Ger.

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